MEDICAL SOCIETY OF THE STATE OF NEW-YORK

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TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NEW YORK.

FOR THE YEAR 1894.

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MEDICAL SOCIETY

OF THE

STATE OF NEW YORK.

ORGANIZATION.

By an Act of the Legislature passed April 4, 1806, and subsequently amended, the Medical Society of the State of New York is organized, as follows:

The Society is composed of delegates, permanent members, and honorary members.

I. Delegates.

Delegates are sent by county medical societies, certain medical colleges, incorporated voluntary medical societies, and by the New York Academy of Medicine. Each county medical society is entitled to as many delegates as there are Assembly districts in said county; they are to be elected by ballot at annual meetings of the societies. Each incorporated medical college, which, by its charter, may be represented in this Society, is entitled to one delegate; incorporated voluntary medical societies, the members of which are members of their county medical societies, and whose by-laws conform with those of this Society, are, if admitted to representation, each entitled to one delegate, and the New York Academy of Medicine to five delegates.

The organizations entitled to representation in this Society are required by its by-laws to pay to the Treasurer, for the use of the Society, five dollars annually for each delegate they are entitled to send; and no delegate is permitted to inscribe his name in the register, at the annual meeting, until the dues against the organization he represents have been paid.

The term for which delegates are elected is three years, and, as nearly as possible, one-third of the whole number is annually elected. The credentials of all delegates must be duly authenticated by the seal of the organization which they represent, and the signature of the Secretary.

The following table exhibits the classification of counties, colleges and incorporated societies, as respects the election of delegates, and shows the number of delegates to which each is entitled, and when the present delegations become vacant.*

Vacant Feb. 1, 1895.		Vacant Feb. 1, 1896.		Vacant Feb. 1, 1897.	
Allegany,	1	*Genesee*,	1	Albany,	4
Broome,	1	Livingston,	1	Cattaraugus,	**1**
Chautauqua,	**1**	Montgomery,	1	Cayuga,	**1**
Chenango,	1	New York,	**30**	Chemung,	1
Clinton,	1	*Orleans*,	1	Dutchess,	2
Columbia,	1	Oswego,	**1**	Essex,	1
Cortland,	1	Schuyler,	1	Fulton,	**1**
Delaware,	1	Seneca,	1	Greene,	1
Erie,	**6**	Wyoming,	1	Jefferson,	**1**
Franklin,	1	Yates,	1	Lewis,	1
Herkimer,	1	College of Physicians and Surgeons of New York,	1	*Monroe*,	3
Kings,	**18**	Long Island College Hospital,	1	Niagara,	**1**
Ontario,	1	Niagara University, Medical Department,	1	Oneida,	**2**
Madison,	1	*Medical Department of University of Buffalo*,	1	*Onondaga*,	3
Rockland,	1	*College of Medicine, Syracuse University*,	1	*Orange*,	2
St. Lawrence,	**1**	N. Y. Post-Graduate Medical School and Hospital,	1	Otsego,	**1**
Saratoga,	**1**	Rochester Pathological Society,	1	Putnam,	1
Suffolk,	1	Utica Medical Library Association,	1	Queens,	**3**
Ulster,	**2**	Society of Physicians of Canandaigua,	1	*Rensselaer*,	3
Washington,	**1**	Syracuse Academy of Medicine,	1	Richmond,	1
Wayne,	**1**			Schenectady,	1
University of City of N. Y., Medical Department,	1			Schoharie,	1
Bellevue Hospital Medical College,	1			Steuben,	1
Medical Association of Northern New York,	1			Sullivan,	1
Elmira Academy of Medicine,	1			Tioga,	1
Practitioners' Society of Rochester,	1			Tompkins,	1
				Warren,	1
				Westchester,	1
				New York Academy of Medicine,	5
				Albany Medical College,	1
				New York Polyclinic,	1
Total,	49	Total,	49	Total,	49

* The number of delegates for different counties has been changed to conform with the State apportionment of Assembly districts of 1893 — where change has been made in the number of delegates the number is printed in heavy faced type; changes have been made also in the classes, to secure an even distribution, and those so transposed are printed in *italics*.

II. Permanent Members.

Permanent members are elected at the annual meetings of this Society, the names of those eligible being presented by the Secretary upon application. Eligibility to permanent membership is secured by service as a delegate, and attendance and registry as such upon at least two annual meetings of this Society. Permanent members-elect must be active members of their county societies.

Each permanent member on his election is required to pay an initiation fee of five dollars, and also the annual dues of a permanent member for the year in which he was elected; failure to pay the initiation fee within one year after election renders the election void. Permanent members are required to pay annually five dollars to the Treasurer, for the use of the Society, and no permanent member is allowed to inscribe his name in the register, at the meetings of the Society, who has not paid his dues for that year, and all arrearages. All annual dues are payable at the beginning of the session of the annual meeting of the Society.

Only delegates and permanent members whose names are inscribed in the register are entitled to vote at the meetings of the Society.

III. Honorary Members.

The Society may, at the annual meeting, elect eminent physicians from other States, or from foreign countries, as honorary members. They must have been nominated at a previous annual meeting, and those elected shall not exceed six in number in any year.

The Society may invite physicians who are present at any meeting to take seats as guests, but no physician of this State shall be so invited who is not a member of a county medical society entitled to representation in this Society.

Honorary members and invited guests shall have the privilege of a seat at the meetings, and of presenting papers, and of taking part in discussions, but they shall not vote on any question nor be eligible to any office. Papers presented by them require a special vote by the Society, of reference to the Committee of Publication, in order to appear in the published *Transactions*.

Meetings.

The annual meetings of the Society shall be held in the city of Albany, on the first Tuesday in February in each year, and other meetings at such time and place as may be determined by a majority

of the Society convened at any legal meeting. Fifteen members shall constitute a quorum for the transaction of business. The Society may, at its pleasure, change the time of holding its annual meeting, in accordance with the provisions of Chapter V, Laws of 1876, being an "Act to enable the Medical Society of the State of New York to alter the time of holding its annual meeting."

The Senatorial Districts established in 1836 are given in the following table. In connection with the name of each county is placed a figure, to indicate the number of Assembly Districts it contains, according to the apportionment made by the Legislature of 1893. Each Senatorial District, through the members present from it at an annual meeting, elects a member of the Committee of Nomination.

First Senatorial District.—Kings, 18; New York, 30; Richmond, 1.

Second Senatorial District.—Dutchess, 2; Queens, 3; Sullivan, 1; Orange, 2; Rockland, 1; Ulster, 2; Putnam, 1; Suffolk, 1; Westchester, 3.

Third Senatorial District.—Albany, 4; Greene, 1; Schenectady, 1; Columbia, 1; Rensselaer, 3; Schoharie, 1; Delaware, 1.

Fourth Senatorial District.—Clinton, 1; Herkimer, 1; Saratoga, 1; Essex, 1; Montgomery, 1; Warren, 1; Franklin, 1; St. Lawrence, 1; Washington, 1; Fulton and Hamilton, 1.

Fifth Senatorial District.—Jefferson, 1; Madison, 1; Oswego, 1; Lewis, 1; Oneida, 2; Otsego, 1.

Sixth Senatorial District.—Allegany, 1; Chenango, 1; Steuben, 2; Broome, 1; Livingston, 1; Tioga, 1; Cattaraugus, 1; Schuyler, 1; Tompkins, 1; Chemung, 1.

Seventh Senatorial District.—Cayuga, 1; Ontario, 1; Wayne, 1; Cortland, 1; Seneca, 1; Yates, 1; Onondaga, 3.

Eighth Senatorial District.—Chautauqua, 2; Monroe, 3; Orleans, 1; Erie, 6; Niagara, 1; Wyoming, 1; Genesee, 1.

OFFICERS AND COMMITTEES.

ELECTED FEBRUARY 8, 1894.

PRESIDENT.

GEORGE HENRY FOX, New York.

VICE-PRESIDENT.

FRANK S. LOW, Pulaski.

SECRETARY.

FREDERIC C. CURTIS, Albany.

TREASURER.

CHARLES H. PORTER, Albany.

COMMITTEE OF ARRANGEMENTS.

WILLIAM J. NELLIS, Albany. JOSIAH HASBROUCK, Port Ewen.
REYNOLD W. WILCOX, New York.

COMMITTEE ON BY-LAWS.

H. D. WEY, Elmira. A. R. SIMMONS, Utica.
F. C. CURTIS, Albany.

COMMITTEE ON HYGIENE.

CHARLES E. BRUCE, New York. H. R. HOPKINS, Buffalo.
A. N. BELL, Brooklyn. LEWIS BALCH, Albany.
D. S. BURR, Binghamton. E. H. LOUGHRAN, Kingston.
O. W. PECK, Oneonta.

COMMITTEE ON LEGISLATION.

D. B. ST. JOHN ROOSA, New York. DANIEL LEWIS, New York.
D. V. O'LEARY, Albany.

COMMITTEE ON MEDICAL ETHICS.

JOHN S. WARREN, New York. CHARLES JEWETT, Brooklyn.
EUGENE BEACH, Gloversville.

COMMITTEE ON PRIZE ESSAYS.

FRANKLIN TOWNSEND, JR., Alb'y. A. WALTER SUITER, Herkimer.
CHARLES STOVER, Amsterdam.

COMMITTEE ON PUBLICATION.

F. C. CURTIS, Albany. F. D. BAILEY, Brooklyn.
CHARLES H. PORTER, Albany. W. W. POTTER, Buffalo.

MEMBERS IN ATTENDANCE AT THE ANNUAL MEETING OF 1894.

Delegates.

Albany County:
F. L. Classen, Albany.
W. G. Macdonald, Albany.
T. F. C. Van Allen, Albany.
A. T. Van Vranken, West Troy.
Albany Medical College:
Samuel R. Morrow, Albany.
Broome County:
W. A. Moore, Binghamton.
Cattaraugus County:
S. J. Mudge, Olean.
Cayuga County:
C. O. Baker, Auburn.
Wm. S. Cheesman, Auburn.
Chautauqua County:
Nelson G. Richmond, Fredonia.
Chemung County:
John Moroney, Elmira.
H. D. Wey, Elmira.
Elmira Academy of Medicine:
G. V. R. Merrill, Elmira.
Chenango County:
George O. Williams, Greene.
Clinton County:
J. B. Ransom, Dannemora.
Columbia County:
Wilmer I. Gordon, Copake.
Dutchess County:
G. Huntington, La Grangeville.
D. B. Ward, Poughkeepsie.
Erie County:
William C. Callanan, Buffalo.
H. E. Hayd, Buffalo.
J. H. Pryor, Buffalo.
John J. Walsh, Buffalo.
Ernest Wende, Buffalo.
Fulton County:
Frank Beebe, Johnstown.
Greene County:
E. E. Elliott, Catskill.
Herkimer County:
W. D. Garlock, Little Falls.
Jefferson County:
De Witt C. Rodenhurst, Philadelphia.
Kings County:
C. F. Barber, Brooklyn.
H. Beekman Delatour, B'klyn.
Reuben Jeffery, Brooklyn.
George E. Law, Brooklyn.
Henry C. McLean, Brooklyn.
George McNaughton, B'klyn.
J. M. Van Cott, Jr., Brooklyn.
James McF. Winfield, B'klyn.
Lewis County:
Cyrille P. Kirley, Lowville.
Monroe County:
Henry. S. Durand, Rochester.
Mrs. Marion Craig Potter, Rochester.
F. W. Zimmer, Rochester.
Rochester Pathological Society:
T. Oliver Tait, Rochester.
Rochester Practitioner Society:
Eveline P. Ballintine, Rochester.
Montgomery County:
C. F. Timmerman, Amsterdam.
New York County:
Chas. H. Avery, New York.
H. J. Boldt, New York.
A. H. Buckmaster, New York.
Lewis A. Coffin, New York.
Carter S. Cole, New York.
Alex. Dallas, New York.
G. M. Edebohls, New York.

Landon C. Gray, New York.
Edward N. Liell, New York.
William J. Morton, New York.
T. Halstead Myers, New York.
James E. Newcomb, New York.
James E. Nichols, New York.
J. C. Smith, New York.
W. R. Townsend, New York.
Geo. T. Wetmore, New York.

New York Academy of Medicine:
Joseph D. Bryant, New York.
Hobart Cheesman, New York.

New York Post-Graduate Medical School:
Reynold W. Wilcox, New York.

Oneida County:
D. A. Barnum, Cassville.
J. G. Kilbourn, Utica.
L. Swartwout, Prospect.

Utica Medical Club:
W. A. Burgess, Utica.

Utica Medical Library Association:
D. C. Dye, Utica.

Onondaga County:
Ulysses H. Brown, Syracuse.
J. W. Brown, Mottville.

Med. Depart. of Syracuse Univ.:
A. B. Miller, Syracuse.

Syracuse Academy of Medicine:
E. L. Mooney, Syracuse.

Ontario County:
Society of Physicians, Canandaigua.
Albert L. Beahan, Canandaig'a.

Orange County:
W. L. Cuddeback, Port Jervis.
J. B. Hulett, Middletown.

Orleans County:
George J. Lund, Medina.

Putnam County:
A. La Monte, Carmel.

Queens County:
Louis N. Lanehart, Hempstead.
John Mann, Jericho.

Rensselaer County:
R. Brinsmade Bontecou, Troy.
Herman C. Gordinier, Troy.
William W. Seymour, Troy.

Richmond County:
J. W. Wood, Port Richmond.

St. Lawrence County:
J. M. Mosher, Ogdensburg.

Schenectady County:
William T. Clute, Schenectady.

Steuben County:
T. O. Burleson, Bath.
C. S. Parkhill, Hornellsville.

Tioga County:
D. S. Anderson, Owego.

Tompkins County:
Chauncey P. Biggs, Ithaca.

Ulster County:
Jacob Chambers, Kingston.
J. Hasbrouck, Port Ewen.

Washington County:
G. H. Whitcomb, Greenville.

Westchester County:
Stuart B. Carlisle, Mt. Vernon.
N. F. Curtis, White Plains.

Delegates from State Societies.

Massachusetts:

Williard H. Pierce, Greenfield.

Honorary Members.

A. P. Grinnell, Burlington, Vt.
Joseph Price, Philadelphia, Pa.
J. F. W. Ross, Toronto, Canada.

Permanent Members.

H. R. Ainsworth, Addison
Charles S. Allen, Greenbush
E. B. Angell, Rochester
M. T. Babcock, Hammondsport
Wm. H. Bailey, Albany
Lewis Balch, Albany
O. D. Ball, Albany
L. Bolton Bangs, New York
Eugene Beach, Gloversville
Herman Bendell, Albany
J. M. Bigelow, Albany
C. W. Bourne, Hamburg
James P. Boyd, Albany
C. W. M. Brown, Elmira
Ulysses H. Brown, Syracuse
C. E. Bruce, New York
E. F. Brush, Mt. Vernon
J. E. Burdick, Johnstown
T. O. Burleson, Bath
D. S. Burr, Binghamton
M. H. Burton, Troy
H. W. Carpenter, Oneida
J. E. Casey, Mohawk
Walter B. Chase, Brooklyn
Jno. H. Cipperly, Troy
Edward Clark, Buffalo
D. H. Cook, Albany
H. S. Crandall, Leonardsville
Floyd S. Crego, Buffalo
J. P. Creveling, Auburn
C. W. Crispell, Rondout
C. M. Culver, Albany
Andrew F. Currier, New York
F. C. Curtis, Albany
Walter S. Daly, Ogdensburg
H. H. Deane, Watertown
W. B. De Garmo, New York
H. Beekman Delatour, Brooklyn
H. L. Elsner, Syracuse
William S. Ely, Rochester
Jas. D. Featherstonhaugh, Cohoes
M. Felter, Troy
Edward D. Fisher, New York
Henry Flood, Elmira
W. E. Ford, Utica
Amos Fowler, Albany
George Henry Fox, New York
N. H. Freeland, Tarrytown
S. H. Freeman, Albany
Crawford E. Fritts, Hudson
Earl D. Fuller, Utica
P. R. Furbeck, Gloversville
George Graves, Herkimer
Henry Gray, Greenwich
John Gerin, Auburn
Arpad G. Gerster, New York
William Hailes, Albany
Herman E. Hayd, Buffalo
C. R. Heaton, Oswego
C. B. Herrick, Troy
Wallace J. Herriman, Rochester
Amanda S. Hickey, Auburn
Henry R. Hopkins, Buffalo
William R. Howard, Rochester
Henry Hun, Albany
J. W. Hyde, Brooklyn
A. Jacobi, New York
Nathan Jacobson, Syracuse
J. M. Jenkins, Auburn
David D. Jennings, New York
Charles Jewett, Brooklyn
W. H. Johnston, Port Leyden
Herbert G. Jones, Utica
W. S. Layman, Schoharie
Charles M. Lefler, Gloversville
Joseph Lewi, Albany
Maurice J. Lewi, New York
Daniel Lewis, New York
Carlos F. MacDonald, New York
Charles P. McCabe, Greenville
George McNaughton, Brooklyn
Frank Maddren, Plattsburgh
William Maddren, Brooklyn
M. L. Mallory, Rochester
A. H. Mambert, Rondout
C. S. Merrill, Albany
Willy Meyer, New York
Theodore D. Mills, Middletown
Robert T. Morris, New York
Herman Mynter, Buffalo
W. J. Nellis, Albany
D. V. O'Leary, Albany
Geo. H. Oliver, Dickinson Centre
Albert H. Palmer, Marlborough
F. M. Perine, Dansville
T. Kirk Perry, Albany
A. M. Phelps, New York
Lewis S. Pilcher, Brooklyn

M. G. Planck, Schenectady
G. P. K. Pomeroy, Stuyvesant
C. H. Porter, Albany
Clarence C. Rice, New York
John O. Roe, Rochester
D. B. St. John Roosa, New York
Thos. E. Satterthwaite, New York
George Seymour, Utica
B. F. Sherman, Ogdensburg
James D. Spencer, Watertown
C. L. Stiles, Owego
E. V. Stoddard, Rochester
Charles Stover, Amsterdam
W. H. Stuart, Norwich
F. R. Sturgis, New York
A. Walter Suiter, Herkimer
Peter L. Suits, Tribes Hill
D. M. Totman, Syracuse
Franklin Townsend, Albany
A. Vander Veer, Albany
Sol. Van Etten, Port Jervis
E. Van Slyke, Albany
Theodore C. Wallace, Cambridge
S. B. Ward, Albany
Frank E. West, Brooklyn
H. D. Wey, Elmira
William C. Wey, Elmira
John T. Wheeler, Chatham
R. J. Wilding, Malone
Charles E. Willard, Catskill
H. T. Williams, Rochester
C. E. Witbeck, Cohoes
G. H. Witter, Wellsville
Wm. Warren Potter, Buffalo

Invited Guests.

A. E. Abrams, Hartford, Conn.
Dudley P. Allen, Cleveland, Ohio
Robert Babcock, Albany
Theo. P. Bailey, Albany
O. C. Baker, Brandon, Vt
S. J. Banker, Fort Edward
Charles R. Barber, Rochester
R. F. Barton, Altamont
C. M. Briggs, Fairport
A. L. Brown, Cornwall.
J. H. Brownlow, Ogdensburg
O. T. Bundy, Deposit
Albert B. Burger, Ballston
R. P. Bush, Horseheads
D. C. Case, Slingerlands
Arnold W. Catlin, Brooklyn
Lawrence Coffin, Brooklyn
W. T. Cox, Moravia
M. H. Cullings, Gloversville
E. W. Cushing, Boston
W. H. Daley, Pittsburg, Pa
C. W. De Baun, Fonda
Gregory Doyle, Syracuse
F. E. Easton, Van Hornsville
G. P. English, Boonville
J. R. English, Fishkill
F. G. Fielding, Glens Falls
William Finder, Troy
C. C. Fite, New York
H. L. Furbeck, St. Johnsville
R. B. Granger, New York
Lorenzo Hale, Albany
Sumner Hayward, Rochester
A. F. Hodgman, Auburn
M. B. Hubbs, Addison
W. J. Hunt, Glens Falls
L. D. Ingham, West Stockbridge, Mass
R. G. Johnson, Amsterdam
Arthur W. Johnstone, Cincinnati, Ohio
William B. Jones, Rochester
Milton P. Joy, Cazenovia
M. R. Joy, Canastota
Howard A. Kelley, Baltimore, Md.
John Lambert, New Salem
U. B. La Moure, Albany
John K. Leaning, Cooperstown
William G. Lewi, Albany
G. N. Lehr, Frankfort
B. C. Loveland, Clifton Springs
D. M. MacMartin, Amsterdam
Andrew McFarlane, Albany
G. C. Madill, Ogdensburg
J. H. Martin, Otego
Charles H. Moore, Albany
R. H. Morey, Old Chatham
George S. Munson, Albany
T. W. Nellis, Albany
Charles P. Noble, Philadelphia, Pa
Brownislaw Onuf, Dolgeville
F. A. Palmer, Mechanicville

John O. Palmer, Auburn
E. B. Potter, Rochester
S. S. Richards, Frankport
Benj. F. Rogers, Buffalo
George H. Rohé, Catonsville, Md.
Arthur G. Root, Albany
E. T. Rulison, Amsterdam
Selwyn A. Russell, Poughkeepsie
L. Safford, East Durham
Wm. Schutter, Albany
John H. Skillicorn, Albany
Fred. W. Slocum, Camillus
A. Lapthorn Smith, Montreal, Canada.
Arthur V. H. Smythe, Amsterdam
Sargent F. Snow, Syracuse
D. V. Still, Johnstown
Jno. Ben Stonehouse, Albany
Alexander Strong, New York
J. R. Sturtevant, Theresa
C. C. Thayer, Clifton Springs
John Thompson, Albany
G. L. Ullman, Albany
Charles G. Wagner, Binghamton
W. A. Wasson, Greenville
John S. Wilson, Poughkeepsie
O. J. Wilsey, Amityville
T. Floyd Woodworth, Kinderhook

Whole number present at the meeting, 305.

MINUTES OF THE PROCEEDINGS

OF THE

MEDICAL SOCIETY OF THE STATE OF NEW YORK,

AT ITS EIGHTY-EIGHTH ANNUAL SESSION,

HELD AT

ALBANY, FEBRUARY, 1894.

First Day — *Morning Session.*

The President, Dr. Herman Bendell, of Albany, called the meeting to order Tuesday, February 6, 1894, at 9:25 A. M., in the Common Council Chamber, City Hall, Albany, and the exercises were opened with prayer by the Rev. A. V. V. Raymond, D. D., of Albany.

The President then delivered his

Inaugural Address.

Gentlemen of the Medical Society of the State of New York: Permit me to tender my sincere thanks and grateful appreciation of the high honor and distinguished compliment you have conferred in electing me to preside over the deliberations of this time-honored Society.

My predecessor, in his inaugural address, has so fully acquainted the Society with the condition of the profession throughout the State, that it is needless at this time to present statistics that would not materially differ from previous reports. It is, however, safe to say that the number of legally educated physicians in this State, and this assertion is based on the number graduated from our medical schools annually, is increasing, while those who at-

tempt to practice medicine without any knowledge of the science, are forced to abandon their pseudo-title of doctor of medicine, and the practice of a profession in which they were never educated. The law now in force requiring all persons who enter upon the practice of medicine to register credentials as proof that they have been safely educated, has largely reduced the number of quacks and illegal practitioners. How much more may be done in reducing the evils resulting from the unlawful practice of medicine by the enactment of more efficient laws, can readily be inferred.

The influence of this Society, as the exponent of the medical profession of our State, is yearly becoming more marked. The enactment of laws regulating the study and practice of medicine, the enforcement of sanitary reforms, and the vigilant attitude of this Society in all matters tending to elevate the standard and usefulness of the profession has been so well done that the benefits of our work are appreciated and applauded by the people.

THE MEMBERSHIP OF THE SOCIETY has continued to increase as rapidly as our By-laws will permit. Under our By-laws each county is entitled to as many Delegates as the county has Members of Assembly. This evidently effects a change in the number of Delegates whenever there occurs a change in the number of Members of Assembly in a county. It would appear, however, that a change of such consequence should receive your formal sanction before being acted upon by the officers of the Society.

The reapportionment of the State last Winter makes changes in the number of Members of Assembly in seventeen counties. In Cattaraugus, Cayuga, Chautauqua, Jefferson, Niagara, Oswego, Otsego, Saratoga, Washington and Wayne the number is diminished from two members to one; in Oneida and Ulster from three to two, and in St. Lawrence from three to one, while New York has an increase from twenty-four to thirty, Kings from twelve to eighteen, Queens from two to three, and Erie from five to six. It is perhaps for me only to suggest that by your action the number of Delegates from these respective counties be changed to correspond with the reapportionment, thus formally ratifying the requirements of our By-laws.

PRESIDENTS OF COUNTY SOCIETIES AS EX-OFFICIO MEMBERS OF THIS SOCIETY. It is to be somewhat regretted that the reapportionment of our Delegates diminishes the relative representation from a number of the rural county societies. As a representative body, all parts of the State should be fully represented in this Society. I would

raise the question before you, whether it would not be judicious to equalize this in a measure, in a manner that suggests itself to me, viz., by making the Presidents of all County Societies *ex-officio* members of this body during the term of their service. I would propose that as such they have all the rights of Delegates, and that this be granted without the requirement of a fee, in the case that their Society is not in arrears in the payment of its annual dues, but that their registry of attendance at one of our Annual Meetings should not count toward securing eligibility to permanent membership.

The State Board of Medical Examiners. The work of this Board during the short period of its existence has demonstrated that the purposes for which it was created have been fully and conscientiously exercised. The work done in controlling the standard of admission to the practice of medicine is yearly becoming more proficient. The examinations are more searching, covering a wider scope within the seven topics or subdivisions defined by the law. I am informed that during the year there were 327 candidates examined. Of this number, 267 were passed by the Board, and have been admitted as practitioners of medicine. Of this number, 244 are credited as State Board men, 17 are Homeopaths and 6 are Eclectics. The membership of the Board remains unchanged, indicative of wise original selections. It is advisable that, when the conditions will admit of more frequent examinations, the proposition of dividing the examinations so as to allow the primary branches to be passed separately and during college years, should be inaugurated. There is still some little friction on account of the preliminary or medical student's certificate, which should be promptly adjusted, for as the case now stands, our State Colleges are discriminated against, and even if the loss be but a few students annually, this state of affairs should not exist. In the correction of the law there should, however, be no lowering of standards.

The Pan American Medical Congress. This important initial gathering of medical representatives from this and other countries of this hemisphere became in September a thing accomplished, after long preparatory work, in which this Society, through its appointed committee and individual membership, took an interested and active part. The meeting has become a part of history and the organization continues vital and further work awaits it in the future, as a second meeting is to be held in the city of Mexico, at such time, three or four years hence, as may

be settled upon by the permanent committee. The success of the meeting, so far as it having called together a large number of representative men and having called out for discussion a mass of valuable material, and having attained a dignified attention through the adoption and indorsement of it from the general government, is quite beyond question, and was fully up to all that could have been anticipated. It seems altogether probable that it will mark an epoch in the medical history of this half of the world. The scientific work accomplished by it was large, the opportunities offered by professional co-operation among the different sections represented were well availed of, and in various directions, sanitary, medical education, and the like, which are best rendered effective by common action on the part of otherwise separated communities and nations, the work done by such a gathering must be of very considerable benefit. The future history of an organization so well inaugurated will be looked forward to with interest by this Society.

State Medical Library. Much remains to be done toward enlarging the usefulness of the State Medical Library. Legislation was obtained in 1891 which authorized the establishment of a Department of Medical Literature in the State Library, and since then the sum of $5,000 has been expended in arranging the five thousand volumes donated by the Albany Medical College as a nucleus for this library. I present this question for the purpose of giving this Society an opportunity to take such action that will enable the Regents of the University to equip this library with the current medical literature and the medical literature of all ages. The importance and special usefulness of a complete State Medical Library, accessible to every physician, can easily be foreseen, and it should be the aim of this Society to labor for a full consummation of this meritorious measure. The funds thus far appropriated have only been sufficient to cover the cost of arranging and catalogueing the books now on hand. Funds are constantly required to equip a large public medical library, and the law of 1891, which provides only for the acceptance and care of this library, should be amended so that a specified sum is annually appropriated by the Legislature, to be expended for the purchase of new books and to enlarge the advantages of this institution. This Society should also encourage the donation of medical books, and especially endeavor to bring the libraries of deceased physicians, which frequently contain valuable medical literature and are generally placed in the shop of the old

book man to be disposed of for a mere pittance, to the shelves of the State Medical Library, and by so doing perpetuate the memory of the donor.

Place of Holding Annual Meetings. Although not a new question, I would again raise it, as to whether the good of the Society and the interest in its meetings would not be advanced by holding the annual meetings, a part of the time, elsewhere than in Albany. The capital of the State is the place for the customary meeting place, and is the natural home of the Society, but there is nothing at present to make it essential that we should meet nowhere else. During the years of our active work in securing better medical legislation, it has been very desirable that we should meet where we could best impress this. We have now largely secured our important aims in this direction. To carry our body here and there and give the benefit of our valuable meetings to new localities and meeting new men, would seem to me wise for the Society and contributory to its usefulness.

While it would not seem desirable to make the change such as to disturb our home relations here, it is certainly worth considering whether each alternate or each third meeting might not be held elsewhere.

Public Health Bill. I trust it will not be considered out of place at this time to recommend the approval and indorsement of the Public Health Bill proposed by the Academy of Medicine of the city of New York.

The provisions of this bill practically embody all details required for a safe administration of affairs pertaining to the public health. The bill simplifies the onerous duties of health officers to be appointed, and the enactment of such a law will be of endless good to the people. A perusal of its details is convincing of its broad merits, and this Society should not hesitate to give prompt encouragement and support for the enactment of this measure.

Necrology. It is proper at this time to announce the names of those members of the Society who have died during the year, and to add our tribute of respect to the memory of our departed colleagues and friends.

Dr. Graily Hewitt, honorary member, died at London, England, September, 1893, aged 66 years.

Dr. Laurence Johnson, permanent member, died at New York, March 18, 1893, aged 48 years.

Dr. Caleb Green, permanent member, died at Homer, May 10, 1893, aged 74 years.

Dr. Archibald T. Douglas, permanent member, died at Groton, Conn., June 9, 1893, aged 69 years.

Dr. Benjamin A. Fordyce, permanent member, died at Union Springs, June 2, 1893, aged 70 years.

Dr. Nelson Nivison, permanent member, died at Burdett, July 14, 1893, aged 78 years.

Dr. Samuel Avery, permanent member, died at Phœnix, September 17, 1893, aged 80 years.

Dr. William T. White, permanent member, died at New York, September 17, 1893, aged 64 years.

Dr. John C. Peters, permanent member, died at New York, October 21, 1893, aged 75 years.

Dr. Alexander Nellis, Jr., delegate, died at Willard, December 27, 1893, aged 47 years.

I pause here to record a few words to the memory of Dr. Laurence Johnson; to eulogize the manly character of our former associate. Dr. Johnson was devoted to the interests of this Society. Upright in all his acts, loyal and manly in the exercise of his privileges as a member of this body, and in all his intercourse with his fellow men he was obliging, truthful and sincere, commanding the respect of his friends and the confidence of his professional brethren.

I now declare the Eighty-eighth Annual Session of the Medical Society of the State of New York, open for the transaction of such business as may be brought before it.

Dr. William C. Wey moved that the address be referred to a committee of five to report upon the recommendations contained in it, requesting that he himself might not be one of the committee. The motion was carried and the following committee appointed: Dr. William Warren Potter, of Buffalo; Dr. Lewis S. Pilcher, of Brooklyn; Dr. Eugene Beach, of Gloversville; Dr. E. F. Brush, of Mt. Vernon; Dr. C. R. Heaton, of Owego.

The President announced the following committees:

Business Committee: Dr. Henry Flood, of Elmira; Dr. Edward Clark, of Buffalo; Dr. L. Bolton Bangs, of New York.

Committee on Credentials: Dr. Daniel H. Cook, of Albany; Dr. Charles W. Crispell, of Rondout; Dr. C. F. Timmerman, of Amsterdam.

The SECRETARY presented the names of applicants for permanent membership, which, under the rules, were referred to the Committee of Nominations.

The SECRETARY presented the following communication, which was, on motion, received and referred to the Committee of Nominations:

WASHINGTON CITY, D. C., *September* 6, 1893.

DR. HERMAN BENDELL, *President:*

DEAR SIR: I have the honor to inform you that the Medical Society of the District of Columbia, will, on the 16th of February, 1894, commemorate its seventy-fifth anniversary. The New York Medical Society, of which you are President, is one of eleven medical societies in this country, now in existence, which were organized at a date prior to the Medical Society of the District of Columbia, and I am directed by the Committee of Arrangements of said seventy-fifth anniversary to invite the New York Medical Society to send a representative to said anniversary celebration.

Please do me the favor, at your earliest convenience, to inform me of the name and address of such representative with whom the committee may communicate in regard to the anniversary.

Respectfully yours,

GEO. C. OBER, M. D., *Secretary of Committee.*

The SECRETARY presented the following communication from the Secretary of the Board of Regents, which was, on motion, received and placed on file.

The Secretary Medical Society State of New York:

DEAR SIR: At a legal meeting of the Regents of the University of the State of New York, held at their office in the Capitol, in Albany, February 9, 1893, the following action was taken:

[*Extracts from Official Minutes.*]

HONORARY MEDICAL DEGREES. Numerous protests from prominent physicians were submitted urging the Regents not to act under the old laws authorizing them in their discretion to confer the honorary degree of M. D. on three persons nominated each year by various societies.

Voted, That it is inexpedient for the Regents hereafter to confer the honorary degree of M. D. on physicians nominated by the State Medical Societies, as authorized by the Laws of 1840, chap. 366; of 1862, chap. 268, § 3; and of 1868, chap. 152, § 14.

A true record. Attest: MELVIL DEWEY,
Secretary.

The SECRETARY offered a resolution indorsing the action of the Committee on Credentials of 1893 in admitting to representation in this Society the Practitioners' Society of Rochester. Adopted.

Also, to admit to representation the Syracuse Academy of Medicine. Adopted.

Dr. A. JACOBI, of New York, made an explanation regarding a proposed amendment of the By-laws in reference to the manner of electing officers, of which he gave notice at the last meeting (page 44, *Transactions*, 1893), and asked leave to withdraw it. It was so voted.

Dr. EUGENE BEACH, of Gloversville, presented the following:

Whereas, The institutions established by the State for the care and treatment of the insane are an abiding evidence of the progress of medicine and of the medical profession's enlightened conception of the needs of the insane, and

Whereas, They are distinctively medical institutions which should remain in the future, as in the past, under immediate medical direction and control, therefore

Resolved, That recent attempts to place the State Hospitals for the Insane under centralized management constitute a distinct menace to the interests of the insane and that this Society deprecates and deplores any policy that is calculated to inject into the great charitable institutions of the State the dangerous element of politics, always subversive of the scientific welfare of such institutions, and that it recommends that the Legislature take such action during its present session as will emphasize the medical character of the State institutions for the insane, and tend to the restoration of local medical control, subject to proper State supervision, as against the assumption of all executive authority by a centralized power.

Resolved, That the Committee on Legislation of this Society be and hereby is requested to take such action as it may deem necessary in obtaining legislation in conformity with the desiderata herewith declared.

The resolution was, on motion, received and referred to the Committee on Legislation.

Dr. A. JACOBI, of New York, presented the following communication from the New York Academy of Medicine, which, on motion, was received and adopted:

Preambles and Resolutions Presented by the Committee on the Coroner Question and Adopted by the New York Academy of Medicine:

Whereas, The prerogative and duty of the Coroner, among other things, is to investigate the cause of death from violence, and of death occurring under suspicious circumstances; also the cause of death of a person that died without the attendance of a legal practitioner, or within twenty-four hours after the first visit of a legal practitioner who declared himself unable to make a diagnosis and to testify to the cause of death; and finally the cause of death in a premature or still birth, no matter whether foul play be suspected or not, provided there be no satisfactory death certificate by a legal practitioner.

And Whereas, The investigation of these obscure cases is beset with great difficulties, requires very much more than the knowledge and information of the average physician, otherwise fully equipped for the practice of medi-

cine, demands indeed a very minute knowledge of general medicine and surgery, and particularly of pathology and toxicology.

And Whereas, Under existing laws the ferreting out of a criminal case is expected from a coroner who need not be either a police officer, or a lawyer, or a physician, but who, knowing that the cause of death can be elucidated only by the application of medical science and art to the individual case, has to select a medical man as his deputy officer.

And Whereas, Experience teaches that these deputies have frequently been selected either for their party allegiance or for personal reasons, and are often young men with no reputation for unusual skill, learning or practical experience, and have not had an opportunity of giving public assurance of their character, integrity and wisdom; it also teaches that the final verdict in a criminal case depends upon the finding of this deputy who, under other circumstances, would not be accepted as an expert; on the summing up of a coroner whose untaught mind cannot satisfy the claims of justice; and finally on a jury gathered at random without regard to standing, character, morals, intellect or knowledge.

Be it Resolved, By the New York Academy of Medicine, that a medical man of mature years, established character, broad mind, and sound and extensive information in anatomy, pathology, toxicology and all the other branches of forensic medicine, must be the responsible occupant of an office in whose keeping are the most sacred interests of the individual, and of the community, and to him should be delegated the initiative and power to elaborate the investigations of an actual or alleged criminal act, his conclusions being reported to the office of the District Attorney.

And be it Resolved, That the New York Academy of Medicine earnestly calls the attention of the approaching Constitutional Convention to the admirable system of medical examiners which the State of Massachusetts has substituted for the coroner's system, and the Academy urges the enactment of similar laws in this State.

And be it further Resolved, That copies of this resolution be forwarded to the various county, local and special medical organizations in this State with the request that they lend their co-operation to secure the necessary changes in the Constitution and laws of the State of New York.

The PRESIDENT announced the appointment of the following Committee on Nominating Candidates for vacancies on the State Board of Medical Examiners : Dr. D. B. St. John Roosa, of New York ; Dr. A. Jacobi, of New York; Dr. A. Vander Veer, of Albany ; Dr. A. Walter Suiter, of Herkimer ; Dr. B. F. Sherman, of Ogdensburgh.

Dr. L. S. PILCHER expressed the conviction that the selection of this committee should be made by a representative committee selected by the members and not by the President, and he moved that the matter be referred to the Committee of Nominations.

The PRESIDENT stated that he made the appointment in accordance with the established custom and the recommendations of the

Committee on the President's Address of last year (pg. 33, *Transactions*, 1893).

After discussion, participated in by Drs. Roosa, Pilcher, Potter and Jacobi, the following amendment to the By-laws, adding another section to chapter VI, was offered by Dr. S. B. Ward and referred to the Committee on By-laws, to report upon at 10 o'clock to-morrow morning:

[Chapter VI] § 9. Candidates for vacancies in the State Board of Medical Examiners shall be selected by a committee of five, appointed by the President of the Society, their selection to be reported to the Society for its approval before being forwarded to the Board of Regents. In the event of any emergency making it necessary for the Board of Regents to request nominations from this Society between its annual meetings, then this committee is instructed to report directly to the Board of Regents.

Dr. WILLIAM S. CHEESMAN, of Auburn, read a paper, "Hemorrhagic Serous Effusion of the Pleura," with report of a unique case.

Discussion by Drs. Wm. S. Ely, of Rochester; Wm. Maddren, of Brooklyn; and W. E. Ford, of Utica.

Dr. WILLIAM FINDER, of Troy, read a paper, "Researches on the Eliminating Power of Diseases, and the Relation between Vaccinia and Enteric Fever," with exhibition of a patient.

Dr. JOHN H. PRYOR, of Buffalo, read a paper, "Pneumonia of the Aged."

Discussion by Drs. A. Jacobi, of New York; H. L. Elsner, of Syracuse; W. S. Ely, of Rochester; and W. S. Cheesman, of Auburn.

Dr. NELSON G. RICHMOND, of Fredonia, read a paper, "Diagnosis and Nomenclature of Fevers." Discussion by Drs. M. L. Mallory, of Rochester; A. Jacobi, of New York, and the author.

Dr. ARNOLD W. CATLIN, of Brooklyn, read a paper, "The Therapeutics of Oxygen."

A "Discussion on Diphtheria," arranged by Dr. A. Walter Suiter, followed.

Dr. THOMAS E. SATTERTHWAITE, of New York, read a paper, "Pathology — Status Præsens."

Dr. A. WALTER SUITER, of Herkimer, read a paper, "Observations on Diagnosis, and Some Sanitary Aspects."

Dr. WILLIAM H. DALY, of Pittsburgh, Pa., read a paper, "Croup and Diphtheria — Unity or Duality."

A paper by Dr. JOSEPH O'DWYER, of New York, was read by Dr. Suiter, "The Comparative Status of Intubation of the Larynx."

Dr. WILLIAM HAILES, of Albany, read a paper, "Complicated Intubation of the Larynx."

The discussion was suspended and recess taken at 1 P. M.

FIRST DAY. — *Afternoon Session.*

The Society was called to order at 2:15 by the PRESIDENT.

The Committee of Nominations was announced, as follows:

Appointed by the President.— Dr. William H. Bailey, of Albany.
First District.— Dr. William J. Morton, of New York.
Second District.— Dr. Josiah Hasbrouck, of Port Ewen.
Third District.— Dr. Daniel V. O'Leary, of Albany.
Fourth District.— Dr. John E. Burdick, of Johnstown.
Fifth District.— Dr. J. H. Glass, of Utica.
Sixth District.— Dr. Hamilton D. Wey, of Elmira.
Seventh District.— Dr. William S. Cheesman, of Auburn.
Eighth District.— Dr. Frederick W. Zimmer, of Rochester.

Dr. WILLIAM J. NELLIS, of the Committee of Arrangements, presented names of invited guests and delegates from State Societies, which will be found in the list on page 9.

The discussion on Diphtheria, which was interrupted at the morning recess, was concluded.

Dr. ABRAHAM JACOBI, of New York, read a paper "The Local Treatment."

Dr. EDWARD F. BRUSH, of Mt. Vernon, read a paper, "The General Treatment."

Dr. H. DEV. PRATT, of Elmira, read a paper, "The Use of Tartar Emetic in Diphtheria."

Discussion by Dr. Thomas E. Satterthwaite, of New York; Dr. A. Jacobi, of New York; Dr. J. W. Wood, of Port Richmond; Dr. Henry R. Hopkins, of Buffalo; Dr. George Seymour, of Utica; and Dr. William H. Daly, of Pittsburgh, Pa.

Dr. DAVID D. JENNINGS, of New York, read a paper, "Treatment of Depressions in the Skull of the New Born."

Discussion by Dr. Andrew F. Currier, of New York; Dr. Carter S. Cole, of New York; Dr. A. M. Phelps, of New York; Dr. William Hailes, of Albany; and the author.

A paper by Dr. A. J. C. SKENE, of New York, was read by Dr. Buckmaster, "Senile Endometritis."

Dr. HERMAN E. HAYD, of Buffalo, read a paper, "Treatment of Endometritis."

Discussion on both papers by Dr. Willis E. Ford, of Utica; Dr. Herman E. Hayd, and Dr. A. H. Buckmaster, of New York.

A discussion on the Topic, "Menstruation and its Abnormalities," arranged by Dr. Andrew F. Currier, was presented.

Dr. Andrew F. Currier, of New York, read a paper, "Introduction and Normal Function."

Dr. Howard A. Kelly, of Baltimore, Md., read a paper, "Dysmenorrhœa, its Causes and Treatment."

Dr. Charles P. Noble, of Philadelphia, Pa., read a paper, "Profuse Menstruation."

Dr. Franklin Townsend, Jr., of Albany, read a paper, "Scanty Menstruation."

Dr. E. W. Cushing, of Boston, Mass., read a paper, "Irregular Menstruation."

Dr. Arthur W. Johnstone, of Cincinnati, O., read a paper, "Menopause — Natural and Artificial."

Adjourned at 6:30 P. M.

First Day. — *Evening Session.*

The Society was called to order by the President at 8 o'clock.

Dr. Carlos F. MacDonald, of New York, read a paper, "The Practical Workings of the Law for the State Care of the Insane."

Dr. Edward M. Liell, of New York, read a paper, "Urethral Caruncles."

Dr. Frederic R. Sturgis, of New York, read a paper, "The Physical Causes of Sexual Debility in the Male, as distinguished from the Psychical Causes."

Dr. Henry R. Hopkins, of Buffalo, read a paper, "Artificial Immunity."

Dr. William S. Ely, of Rochester, read a paper, "The Fable of the Egg."

Dr. A. M. Phelps, of New York, presented the subject, illustrated with forty lantern slides, of "Spinal Supports and Braces, the Indications for their Use, History and Modern Perfection."

Dr. William C. Krauss, of Buffalo, presented and illustrated with lantern slides, "Histology and Pathology of the Spinal Cord." These slides were photo-micrographs of the histology of the different portions of the spinal cord, and of the diseases peculiar to it, representing the cord and its tissues under various powers of objectives, the white and gray matter, the neurogliar and ganglion cells,

the grouping of the ganglion cells in the gray matter, the different tracts of the cord and medulla, sclerotic changes in the white matter, tabes dorsalis, multiple sclerosis, anterior poliomyelitis, amytrophic lateral sclerosis, hydromyelia, syringomyelia, spinal tumors with compression myelitis.

Dr. GEORGE HENRY FOX, of New York, read a paper, illustrated by lantern slides of cases, "Diagnostic Features of Cutaneous Syphilis."

Dr. WALLACE J. HERRIMAN, of Rochester, read a paper, "Lunatics in Public Places."

Adjourned to 9:15 to-morrow.

SECOND DAY. — *Morning Session.*

The Society was called to order by the PRESIDENT at 9:20 o'clock, and the minutes of Tuesday's sessions read.

Dr. EUGENE BEACH desired a correction of the minutes so that they should state that the resolutions offered by him in reference to the State Care of the Insane were adopted instead of received.

The PRESIDENT stated that the motion put by him to the Society was that the resolutions be received and referred to the Committee on Legislation.

The stenographer's notes were called for and they said that the motion was to adopt the resolutions.

A motion to correct the Secretary's minutes to correspond with the stenographer's notes was made by Dr. L. S. PILCHER, to which an amendment was offered by Dr. A. JACOBI, that the stenographer's notes be changed to agree with the minutes of the Secretary as read; the amendment prevailed.

The SECRETARY read the following list of applicants for permanent membership, which were all reported upon favorably by the Committee of Nominations: Dr. William Robert Adamson, Lake George; Dr. Ulysses H. Brown, Syracuse; Dr. C. W. M. Brown, Elmira; Dr. William Browning, Brooklyn; Dr. Daniel S. Burr, Binghamton; Dr. Glenworth R. Butler, Brooklyn; Dr. Ten Eyck O. Burleson, Bath; Dr. Henry Clark Coe, New York; Dr. Walter S. Daly, Ogdensburg; Dr. H. Beeckman Delatour, Brooklyn; Dr. William E. Douglas, Middletown; Dr. Frank F. Dow, Rochester; Dr. Henry A. Gates, Delhi; Dr. George Graves, Herkimer; Dr. Herman E. Hayd, Buffalo; Dr. Wallace J. Herriman, Rochester; Dr. Joel W. Hyde, Brooklyn; Dr. Frank Madden, Plattsburgh;

Dr. George M. McCombs, Clayton; Dr. J. A. McCorkle, Brooklyn; Dr. John C. MacEvitt, Brooklyn; Dr. George McNaughton, Brooklyn; Dr. Henry Moffatt, Yonkers; Dr. Edward W. Mulligan, Rochester; Dr. Milton Godfrey Planck, Schenectady; Dr. Hamilton Stanislaus Quin, Utica; Dr. C. M. Rexford, Watertown; Dr. Charles G. Ward, Utica; Dr. Charles B. Warner, Port Henry; Dr. Hamilton D. Wey, Elmira; Dr. Claude Wilson, Waterville, Oneida county.

On motion they were duly elected.

Dr. MAURICE J. LEWI, of New York, presented the annual report of the State Board of Medical Examiners, which, on motion, was adopted. [See Report at end of Minutes.]

Dr. CHARLES H. PORTER presented his report as Treasurer, which, on motion, was received and referred to the following auditing committee, appointed by the Chair: Drs. William Maddren, of Brooklyn; D. S. Burr, of Binghamton; and Charles E. Willard, of Catskill. This committee subsequently reported upon it as correct and their report was adopted.

The TREASURER also made his report as Trustee of the Merritt H. Cash Prize Fund, which was accepted. [Both reports may be found under Reports at the end of the Minutes.]

Dr. D. B. ST. JOHN ROOSA, of New York, presented the report of the Committee on Legislation, which, on motion of Dr. B. F. Sherman, was adopted. [See Reports at end of Minutes.]

Dr. CHARLES E. BRUCE presented the report of the Committee on Hygiene, which was accepted. [See Reports at end of Minutes.]

Dr. D. B. ST. JOHN ROOSA presented the report of the Committee on Nominating Candidates for vacancies on the State Board of Medical Examiners, recommending the following as such candidates:

Dr. William Warren Potter, of Buffalo.
Dr. William S. Ely, of Rochester.
Dr. Maurice J. Lewi, of New York.
Dr. J. West Roosevelt, of New York.
Dr. Eugene Van Slyke, of Albany.
Dr. George Seymour, of Utica.

On the motion of Dr. L. S. PILCHER the report was approved.

Dr. H. D. WEY made a report of the Committee on By-laws upon the amendment offered by Dr. S. B. Ward yesterday morning, referred to it under the rules; the committee reported in favor of the adoption of the amendment, which is as follows:

Chapter VI, § 9. Candidates for vacancies in the State Board of Medical Examiners shall be selected by a committee of five, appointed by the President of the Society, their selection to be reported to the Society for its ap-

proval before being forwarded to the Board of Regents. In the event of any emergency making it necessary for the Board of Regents to request nominations from this Society between its annual meetings, then this committee is instructed to report directly to the Board of Regents.

Dr. L. S. PILCHER moved that the following be substituted for the amendment to the By-laws as reported by the Committee:

The matter of nomination of candidates for the State Board of Medical Examiners shall be referred to the Committee of Nominations of the Society, to be reported upon by them with other names at the usual time.

Discussion by Drs. Roosa, Vander Veer, Pilcher, Sherman, Jacobi, Ward and Maddren.

The substitute was lost, and the amendment reported favorably by the Committee on By-laws adopted by a two-thirds vote.

A "Discussion on Abdominal Surgery," arranged by Dr. A. Vander Veer, followed.

Dr. JOSEPH PRICE, of Philadelphia, Pa., read a paper, "Disputed Points in the Treatment of Pelvic Surgery."

Dr. J. F. W. ROSS, of Toronto, Canada, read a paper, "Influence affecting the Results of Abdominal Operations."

Dr. A. H. BUCKMASTER, of New York, read a paper, "Hemorrhage after Abdominal Section; its place in Statistics."

Dr. DUDLEY P. ALLEN, of Cleveland, Ohio, read a paper, "Cysts of the Epigastrium."

A paper by Dr. W. W. POTTER, of Buffalo, was read by title, "The Technique of the Abdominal Incision; Methods of its Closure and its subsequent Management."

A paper by Dr. A. VANDER VEER, of Albany, was read by title, "The Unexpected as sometimes observed in Abdominal Surgery."

Discussion of the subject by Drs. Howard A. Kelly, of Baltimore; Arpad G. Gerster, of New York; Charles P. Noble, of Philadelphia; Joseph Price, of Philadelphia; J. F. W. Ross, of Toronto; and A. H. Buckmaster, of New York.

Adjourned to 2:30 P. M.

SECOND DAY. — *Afternoon Session.*

The Society was called to order at 2:30 o'clock by the PRESIDENT.

Dr. FLOYD S. CREGO, of Buffalo, read a paper on "Acromegaly," exhibiting a patient.

A paper on the same subject, by Dr. Frederick Remington, of Rochester, was read by title.

Discussion by Dr. Thomas R. Pooley, of New York, and Dr. B. F. Sherman, of Ogdensburg.

Dr. WILLIAM WATKYNS SEYMOUR, of Troy, read a paper, "Three Cholocystotomies for Gall Stones with recovery, with Remarks on Operative Methods based on six cases."

Discussion by Dr. Herman Mynter, of Buffalo, and the author.

Dr. GEORGE M. EDEBOHLS, of New York, read a paper, "Palpation of the Vermiform Appendix."

Dr. ROBERT T. MORRIS, of New York, read a paper, "The Inch and a half Incision, and Week and a half Confinement in Appendicitis."

Dr. L. S. PILCHER, of Brooklyn, read a paper, "Report of a Case of Post-Peritoneal Abscess from Duodenal Ulcer, with presentation of specimen."

Dr. JOSEPH D. BRYANT, of New York, read a paper, "Appendicitis; the Connection Between its Symtomatology and the Gross Anatomy of the Appendix."

Dr. WILLIAM B. DE GARMO, of New York, read a paper, "Intestinal Perforation in Strangulated Hernia."

Discussion on the papers on Appendicitis by Drs. A. Vander Veer, of Albany; Herman Mynter, of Buffalo; Henry S. Durand, of Rochester; Willy Meyer, Robert T. Morris, George M. Edebohls and Joseph D. Bryant, of New York.

Dr. VANDER VEER moved a vote of thanks to those who had come from outside the Society to participate in the discussion on pelvic surgery. Carried.

Dr. WILLY MEYER, of New York, read a paper, "Recent Methods of Gastrostomy for Stricture of the Œsophagus."

Dr. HERMAN MYNTER, of Buffalo, read a paper, "Some Cases of Brain Surgery."

Dr. THOMAS R. POOLEY, of New York, read a paper, "The Action of Scopolamine on the Eye."

Dr. EDWARD CLARK, of Buffalo, read a paper, "The New and almost Bloodless Operation for Prolapse of the Rectum."

Dr. M. L. MALLORY, of Rochester, offered the following resolutions in relation to the suppression of Bovine Tuberculosis, which were adopted:

Whereas, Statistics show that tuberculosis in its different forms causes one-seventh of the total mortality of the civilized world, and one-fourth of the deaths occurring in what may be called the working period of life; and,

Whereas, It is now well established that tuberculosis is an infectious disease, both communicable and largely preventable; and

Whereas, It is equally well established that bovine tuberculosis is identical with tuberculosis as it occurs in human beings and is communicable

from cattle to human beings both by the flesh and, especially, by the milk, of affected cattle, therefore,

Resolved, That this Society respectfully but earnestly urges all local boards of health in this State to place tuberculosis on the list of infectious diseases dangerous to public health, and that they make and enforce in their respective districts such rules as in their judgment will best protect the public against this dread disease.

Resolved further, That this Society, recognizing the good work that the State Board of Health has done and is doing to suppress bovine tuberculosis in this State, the existence of which constitutes so serious a menace to the public health, assures the State Board of Health of its hearty approval of the work done by said board in this direction, and hereby pledges itself to aid and support said Board of Health, in its further similar work, in any and every way appropriate and possible.

Resolved finally, That one copy of this resolution be sent by the Secretary of this Society to the Secretary of our State Board of Health; one copy to the chairman of the Ways and Means Committee of our State Assembly and one copy to the chairman of the Finance Committee of our State Senate.

Adjourned.

SECOND DAY.— *Evening Session.*

The Society met in the Senate Chamber of the State Capitol, and was called to order by Dr. D. B. ST. JOHN ROOSA, ex-President, at 8 P. M.

The President, Dr. HERMAN BENDELL, read the Anniversary Address on the topic, "The Physician of Sacred History."

On the motion of Dr. L. S. PILCHER, seconded by Dr. A. VANDER VEER, a vote of thanks was extended to the President for his Address.

The Society then adjourned to the Delavan House, where the Annual Dinner was held.

THIRD DAY.— *Final Session.*

The Society met at its usual place and was called to order by the President at 10 A. M. The minutes of the session of the second day were read by the Secretary, and approved.

Dr. EUGENE BEACH presented the

REPORT OF THE COMMITTEE ON THE PRESIDENT'S INAUGURAL ADDRESS.

To the Medical Society of the State of New York:

The Committee on the President's Inaugural Address desires to state that the various recommendations contained therein have been duly considered, and the following suggestions thereon are respectfully offered :

First. That the number of delegates from the counties of Cattaraugus, Cayuga, Chautauqua, Erie, Jefferson, Kings, New York, Niagara, Oneida, Oswego, Otsego, Queens, St. Lawrence, Saratoga, Ulster, Washington and Wayne be changed to correspond with the reapportionment of members of Assembly, according to the last State enumeration.

Second. That the Presidents of County Medical Societies, during their term of office, be admitted as delegates to this Society as *ex-officio* members, without payment of fees, without the right to vote, and without the privilege of the Transactions, but they shall enjoy all the other rights and privileges of regular delegates; but their registry as such *ex-officio* members shall not count toward securing eligibility to permanent membership.

Third. That the Society desires to encourage the donation of private medical libraries to the State Medical Library, and that it urges the Legislature to make such annual appropriations as shall be adequate to suitably increase and improve the State Medical Library.

Fourth. That at present this Society does not desire to change the time or place of holding its annual meetings.

Signed, WILLIAM WARREN POTTER,
EUGENE BEACH,
CARLTON R. HEATON,
EDWARD F. BRUSH.

Also the following minority report:

I concur in the above except in the particular of the Fourth item. In this matter the recommendation is submitted that the Society take the necessary measures to arrange for a session of this Society in some other city of the State than Albany every alternate year.

Signed, LEWIS S. PILCHER.

A motion to adopt the minority report was lost and the report of the majority of the Committee was adopted.

Dr. F. C. CURTIS presented the report of the Committee of Publication. [See Reports.]

Dr. D. S. BURR offered the following Amendment to the By-laws, which was referred to the Committee on By-laws:

Amendment to Chapter I, Sec. 2, second paragraph, of the By-laws of this Society, so as to read as follows:

Each incorporated voluntary Medical Society, the members of which are members of their County Medical Society, and whose By-laws conform with those of the State Society, and each incorporated medical college which, by its charter, may be represented in this Society, *and each State Hospital for the Insane, when elected by its medical staff*, is entitled to one delegate, and the New York Academy of Medicine to five delegates.*

Dr. EUGENE BEACH spoke in regard to the necessity for amending the law providing for the incorporation of County Medical

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*The amendment proposed consists in adding the portion printed in *italics*

Societies; the present law provides for the incorporation of County Medical Societies in counties established, prior to its passage, in 1814, but makes no provision for their incorporation in counties to be subsequently organized, of which there are thirteen, the legal status of the societies in which is in question. He, therefore, moved the adoption of the following:

Resolved, That the Committee on Legislation be instructed to secure such legislation as shall place in proper legal status County Medical Societies in those counties of the State which have been organized since the year 1814.

The resolution was adopted.

Dr. FRANK MADDEN, of Plattsburgh, moved that a committee be appointed to appear before the Committee on General Laws of the Legislature, to explain the matter of regulating the fees of physicians called to serve as Coroners' Assistants.

Carried, and the following Committee was appointed by the President; Dr. Frank Madden, of Plattsburgh; Dr. Carlos F. MacDonald, of New York; and Dr. A. Walter Suiter, of Herkimer.

Dr. A. VANDER VEER spoke of the desirability of devising some plan by which the disposition of the executive business of the meeting might be effected at a session separate from the other work, and to this end he offered the following:

Resolved, That the Committee on By-laws be requested to consider and suggest, at the next meeting, such changes as may seem desirable of our present By-laws.

Dr. ANDREW F. CURRIER seconded the resolution, believing that unless the executive work of the Committees and other work of this character is separated from the purely scientific work of the Society, one or the other will be very much crippled; by convening half a day earlier, that time could be secured and devoted exclusively to the purely business portion of the meeting.

The resolution was adopted.

Dr. A. WALTER SUITER presented the following Report of the Special Committee on Quarantine Legislation:

To the Medical Society of the State of New York:

Your Committee which was appointed at the last annual meeting for the purpose of co-operating with a similar Committee of the New York Academy of Medicine for the purpose of securing the passage of the bill then pending before Congress for the establishment of a National Quarantine System, would respectfully report that the bill referred to became a law shortly after the adjournment, and thus the mission for which the Committee was named, was accomplished.

The subject of National Health Service, however, being still a question before Congress, of vast importance and of the greatest interest to this Society, both professional and otherwise, your Committee would recommend that this or another committee be continued, with instructions to exert every proper effort to secure a comprehensive and satisfactory solution of the problem.

A. WALTER SUITER,
Chairman of the Committee.

On motion, the report was received and the Committee, consisting of Drs. A. Walter Suiter, Herkimer; J. H. Raymond, Brooklyn; Seneca D. Powell, New York; Henry Flood, Elmira; Lewis Balch, Albany; Lucien Howe, Buffalo, and Edward D. Fisher, New York, continued.

Dr. REYNOLD W. WILCOX, of New York, read a paper, "Uræmic Hemiplegia."

Discussed by Drs. E. D. Fisher, of New York, and W. W. Seymour, of Troy.

Dr. GEORGE THOMAS JACKSON, of New York, read a paper, "The Barber Shop as a Source of Contagion."

Discussed by Drs. F. C. Curtis, of Albany, and A. T. Van Vranken, of West Troy.

Dr. W. B. VANDERPOEL, of New York, read a paper, "Glycosuria."

Dr. H. D. WEY, of Elmira, presented the following:

REPORT OF THE COMMITTEE OF NOMINATIONS.

To the Medical Society of the State of New York:

Your Committee of Nominations, after repeated ballots, unable to agree, and with no possibility of reaching a unanimous conclusion, place in nomination for the Presidency of this Society, in accordance with chapter 4, section 2, of the By-laws, the names of Dr. Henry Flood, of Elmira, and Dr. George Henry Fox, of New York, they having received the greatest number of votes; namely, Dr. Flood three votes, and Dr. Fox five votes.

The Committee submits the following:

For Vice-President — Frank S. Low, of Pulaski.

For Secretary — F. C. Curtis, of Albany.

For Treasurer — C. H. Porter, of Albany.

Standing Committees:

For Committee of Arrangements — William J. Nellis, Albany; Josiah Hasbrouck, Port Ewen; Reynold W. Wilcox, New York.

For Committee on By-laws — H. D. Wey, Elmira; A. R. Simmons, Utica; F. C. Curtis, Albany.

For Committee on Hygiene — Charles E. Bruce, New York; H. R. Hopkins, Buffalo; A. N. Bell, Brooklyn; D. S. Burr, Binghamton; Lewis Balch, Albany; E. H. Loughran, Kingston; O. W. Peck, Oneonta.

For Committee on Legislation — D. B. St. John Roosa, New York; Daniel Lewis, New York; D. V. O'Leary, Albany.

For Committee on Medical Ethics — John S. Warren, New York; Charles Jewett, Brooklyn; Eugene Beach, Gloversville.

For Committee on Prize Essays — Franklin Townsend, Jr., Albany; A. Walter Suiter, Herkimer; Chas. Stover, Amsterdam.

For Committee of Publication — F. C. Curtis, Albany; Wm. W. Potter, Buffalo; F. D. Bailey, Brooklyn; C. H. Porter, Albany.

For Honorary Membership — George M. Sternberg, U. S. A., Washington, D. C.; O. E. Herrick, Grand Rapids, Mich.; I. S. Stone, Washington, D. C.; Arthur T. Cabot, Boston; J. H. Packard, Philadelphia.

Eligible to Honorary Membership — George H. Rohé, Catonsville, Md.

For Delegates to State and other Societies :

Delegates to Attend the Seventy-fifth Anniversary of the Medical Society of the District of Columbia — F. W. Zimmer, Rochester; Geo. McNaughton, Brooklyn; A. Walter Suiter, Herkimer.

To the International Medical Congress at Rome — Robt. T. Morris, New York; Carter S. Cole, New York; Jno. O. Roe, Rochester; Clinton B. Herrick, Troy; Geo. Ryerson Fowler, Brooklyn; Lucien Howe, Buffalo; P. R. Furbeck, Gloversville; William J. Morton, New York.

To the Canadian Medical Association — Philander Collard, Sing Sing; E. H. Bridges, Ogdensburg; H. B. Delatour, Brooklyn; Wm. Browning, Brooklyn; A. H. Mambert, Kingston; L. N. Lanehart, Hempstead; Walter S. Daly, Ogdensburg; Wm. N. Gibson, Utica; Edward W. Mulligan, Rochester; Herman E. Hayd, Buffalo; A. M. Phelps, New York.

To the Ontario Medical Association — Franklin Townsend, Jr., Albany; Edward B. Angell, Rochester; F. L. Classen, Albany; Reuben Jeffery, Brooklyn; W. B. De Garmo, New York; Louis A. Weigel, Rochester; A. Vander Veer, Albany; E. L. Mooney, Syracuse; C. C. Rice, New York; G. H. Fox, New York; Alexander Dallas, New York; A. B. Miller, Syracuse; Edward Clark, Buffalo.

To the Massachusetts State Medical Society — W. J. Morton, New York; Robt. T. Morris, New York; A. M. Phelps, New York.

To the Connecticut State Medical Society — Robt. T. Morris, New York; C. W. Crispell, Rondout.

To the New Jersey State Medical Society — J. M. Winfield, Brooklyn; Geo. Graves, Herkimer; Wm. Browning, Brooklyn; J. G. Kilbourn, Utica; L. S. Pilcher, Brooklyn.

To the Virginia State Medical Society — A. M. Phelps, New York.

To the Mississippi Valley Medical Association — A. Walter Suiter, Herkimer; A. Vander Veer, Albany; Jno. O. Roe, Rochester; Seneca D. Powell, New York; Jas. D. Spencer, Watertown; W. W. Potter, Buffalo; Franklin Townsend, Jr., Albany; Fred. L. Classen, Albany; L. S. Pilcher, Brooklyn.

We suggest that the Secretary of the Society is empowered to add to this list the names of any members desirous of attending meetings of these or other societies.

All of which is submitted.

WM. H. BAILEY,
Chairman.
H. D. WEY,
Secretary.

The report was accepted, and a ballot was taken for the election of President, the chair appointing as tellers, Dr. C. S. Merrill, of Albany, and Dr. Carlos F. MacDonald, of New York. The ballot resulted in the election of Dr. George Henry Fox, of New York, who was declared elected.

On motion, the Secretary was instructed to cast one ballot for the other officers, committees and delegates, as recommended in the report, and they were duly elected.

Dr. EUGENE BEACH moved that the thanks of the Society be extended to the municipal officers of this city for the use of the rooms in which the sessions have been held, and also to the Superintendent of Public Buildings for the use of the Senate Chamber on Wednesday evening. Carried.

Dr. A. VANDER VEER moved that a vote of thanks be extended to the Business Committee for the very excellent programme which has been prepared and the able manner in which the business of the Society has been carried out. Carried.

Dr. WILLIAM H. BAILEY moved a vote of thanks to the President for his courteous and efficient ruling of the meetings, and his conduct of the Society during his incumbency. Carried.

The PRESIDENT said : The business of this meeting having been concluded, permit me, gentlemen, to tender you, one and all, my warmest thanks for the hearty support you have given my administration. I can assure you that as long as I live I shall look back upon the days I have spent in this room as your presiding officer as the best recollections of my experience as a member of this body. To be the President of this State Medical Society is undoubtedly one of the greatest honors that can be conferred upon a member of our profession. It is true that the duties are of a most onerous character, but all the troubles and heartaches and disappointments cannot be compared to the pleasures and agreeable acquaintances that are made during the time of one's service as President of this body. I thank the gentlemen especially who have come forward to assist in the literary part of this meeting. Our programme certainly has been one that merits the warmest commendation of every member of the Society.

You have elected a gentleman as my successor who is a man of high standing in the profession, and one who will undoubtedly do full justice to his position as presiding officer of your body. I regret exceedingly that Dr. Fox is not present to permit me to introduce him to you. Again thanking you I await a motion for final adjournment of this eighty-eighth annual meeting.

On motion the Society, at 12:10 o'clock, adjourned.

FREDERIC C. CURTIS,
Secretary.

The next annual meeting of the Society is to be held at Albany, N. Y., on Tuesday, February 5, 1895.

REPORTS.

1. Treasurer's Report.

THE MEDICAL SOCIETY OF THE STATE OF NEW YORK, IN ACCOUNT WITH THE TREASURER.

General Fund.

Received from the County Medical Societies, Institutions, and Individuals, as follows :

Balance in Treasury, as shown by Treasurer's report, Feb. 7, 1893	$902 37
Albany County Medical Society, 1893	20 00
Allegany County Medical Society, 1892 and 1893	10 00
Broome County Medical Society, 1893	5 00
Cattaraugus County Medical Society, 1892 and 1893	20 00
Cayuga County Medical Society, 1893	10 00
Chautauqua County Medical Society, 1892, 1893 and 1894	30 00
Chemung County Medical Society, 1893	5 00
Clinton County Medical Society, 1893 and 1894	10 00
Columbia County Medical Society, 1893	5 00
Delaware County Medical Society, 1893	5 00
Dutchess County Medical Society, 1893	10 00
Erie County Medical Society, 1893 and 1894	60 00
Essex County Medical Society, 1893	5 00
Fulton County Medical Society, 1893	5 00
Carried forward	$1,102 37

Brought forward	$1,102 37
Greene County Medical Society, 1893	5 00
Herkimer County Medical Society, 1893	5 00
Jefferson County Medical Society, 1893	10 00
Kings County Medical Society, 1893	90 00
Lewis County Medical Society, 1893	5 00
Livingston County Medical Society, 1892	5 00
Monroe County Medical Society, 1893	15 00
Montgomery County Medical Society, 1892 and 1893	10 00
New York County Medical Society, 1894	150 00
Onondaga County Medical Society, 1893 and 1894	30 00
Orange County Medical Society, 1892 and 1893	15 00
Orleans County Medical Society, 1892 and 1893	10 00
Otsego County Medical Society, 1893	10 00
Putnam County Medical Society, 1893	5 00
Queens County Medical Society, 1893 and 1894	30 00
Carried forward	$1,497 37

Brought forward	$1,497 37
Rensselaer County Medical Society, 1893	15 00
Richmond County Medical Society, 1893 and 1894	10 00
St. Lawrence County Medical Society, 1893 and 1894	30 00
Schenectady County Medical Society, 1893	5 00
Schoharie County Medical Society, 1893 and 1894	10 00
Seneca County Medical Society, 1893	5 00
Steuben County Medical Society, 1892 and 1893	15 00
Tioga County Medical Society, 1892 and 1893	10 00
Tompkins County Medical Society, 1893 and 1894	10 00
Ulster County Medical Society, 1893	10 00
Warren County Medical Society, 1893	5 00
Washington County Medical Society, 1893	10 00
Westchester County Medical Society, 1894	15 00
Utica Medical Club, 1893	5 00
Medical Department, Union University, 1892 and 1893	10 00
Medical Department, University of Buffalo, 1893	5 00
College of Medicine, Syracuse University, 1893	5 00
Bellevue Hospital Medical College, 1893	5 00
Long Island College Hospital, 1893	5 00
Niagara Medical College, Buffalo, 1893	5 00
Carried forward	$1,687 37

Brought forward	$1,687 37
New York Post Graduate School and Hospital, 1893	5 00
Medical Association, Northern New York, 1890, 1892 and 1893.	15 00
Rochester Pathological Society, 1893	5 00
Utica Medical Library Association, 1893	5 00
Elmira Academy of Medicine, 1893	5 00
Society of Physicians, Village of Canandaigua, 1893	5 00
Practitioners Society, Rochester, 1893	5 00
Initiation fees as Permanent Members from H. T. Williams, O. D. Ball, W. W. Jamison, W. M. Gibson, G. P. K. Pomroy, John Edwards, W. H. Leonard, W. W. Seymour, A. H. Mambert, A. H. Palmer, George J. Lund, H. Lyle Smith, W. J. Nellis, Henry Hun, J. W. Poucher, W. B. De Garmo, Geo. T. Jackson, Horace Lathrop, Edward Clark, J. M. Jenkins, W. E. Douglas, Earl D. Fuller, T. K. Perry, and O. W. Peck (24).	120 00
Received from Permanent Members as annual dues:	
5 for 1891	25 00
19 for 1892	95 00
208 for 1893	1,040 00
4 for 1894	20 00
Received from Dr. Howard A. Kelly, amount voted by the Society, returned	50 00
Interest accrued on deposit in Savings Bank	23 57
Total	$3,105 94

Publication Fund.

Received for	
10 volumes of 1890	$12 50
11 volumes of 1891	14 00
62 volumes of 1892	78 00
374 volumes of 1893	468 25
Total	$572 75

Receipts — General Fund	$3,105 94
Receipts — Publication Fund	572 75
Total	$3,678 69

Expenditures.

The expenditures for and on account of the Society, from February 7, 1893, to February 6, 1894, were as follows:

F. C. Curtis, services as Secretary	$350 00
F. C. Curtis, expenses of office	38 79
F. C. Curtis, Business Committee	33 25
C. H. Porter, services as treasurer	150 00
C. H. Porter, postage, envelopes, etc.	24 60
C. H. Porter, paid for labor and handling Transactions	10 50
C. H. Porter, paid for expressage on Transactions	1 40
W. J. Dornan, printing Transactions, etc.	1206 22
W. J. Dornan, printing	11 20
George L. Goodman, Publishing Co., printing, etc.	39 00
Brandow Printing Co., printing, etc	47 25
S. H. Wentworth, printing, etc.	3 50
Committee on Legislation, expenses of	140 21
Phœnix Insurance Co., insurance on Transactions	21 00
T. F. Romeyn, boxes	9 60
W. M. Stetson, stationery	2 13
W. A. Choate, rent	75 00
R. C. Schultz, stenographer	75 00
Trunk Line Association, special agent	40 00
Mary E. Stonehouse, addressing envelopes	16 63
Helmes Bros., use of chairs	18 75
Dr. Howard A. Kelly, voted by Society	50 00
Frank M. Johnson, janitor	35 00
Arthur Ohara, page	6 00
George B. Johnson, page	6 00
Albany Morning Express, copies of paper	4 50
N. Y. C. & H. R. R. R., freight on Transactions	4 69
Total	$2,420 22

Recapitulation.

Total receipts	$3,678 69
Total disbursements	2,420 22
Balance in treasury	$1,258 47

COUNTY SOCIETIES AND INSTITUTIONS IN ARREARS WITH THE STATE MEDICAL SOCIETY FOR DUES:

Chenango County Medical Society, 1893	$5 00
Cortland County Medical Society, 1886 to 1893	40 00
Franklin County Medical Society, 1893	5 00
Genesee County Medical Society, 1885 to 1893	45 00
Livingston County Medical Society, 1893	5 00
Madison County Medical Society, 1893	5 00
Carried forward	$105 00

Carried forward	$105 00
Niagara County Medical Society, 1893	10 00
Ontario County Medical Society, 1885 to 1893	45 00
Rockland County Medical Society, 1884 to 1893	50 00
Saratoga County Medical Society, 1885 to 1893	90 00
Schuyler County Medical Society, 1880 to 1893	70 00
Sullivan County Medical Society, 1889 to 1893	25 00
Wayne County Medical Society, 1885 to 1893	90 00
Wyoming County Medical Society, 1885 to 1893	45 00
Yates County Medical Society, 1893	5 00
Medical Department University of N. Y., 1893	5 00
College Physicians and Surgeons, N. Y., 1891, 1892, 1893	15 00
Total	$555 00

CHARLES H. PORTER,
Treasurer.

2. REPORT OF THE MERRITT H. CASH PRIZE FUND.

Accrued interest at date of last report	$202 58
Accrued interest from Jan. 1, 1893, to Jan. 1, 1894	28 10
Total interest	$230 68

The Prize Fund ($500) and interest ($230.68) are on deposit in the Albany Savings Bank.

CHARLES H. PORTER,
Trustee Merritt H. Cash Prize Fund.

3. REPORT OF THE COMMITTEE OF PUBLICATION.

The Committee of Publication awarded the printing of the *Transactions*, in due form, to William J. Dornan, of Philadelphia, by whom this annual volume has now been printed for five years. The work was commenced February 23, and the volume was issued August 3. An edition of 800 copies was printed; 206 copies were sent to members, and 105 to medical journals, societies and libraries, as directed by the By-laws.

Of the 55 papers presented at the last annual meeting of the Society, 44 were printed; also 5 biographical sketches. There were 16 illustrative cuts and plates furnished by the authors. Of the entire volume, there were 540 pages, the minutes of the meeting and reports of standing committees filling 66 pages; the scientific papers, 355; obituaries, 12; and Society lists, 100. The Public Health Law enacted last winter, which codifies pre-existing health laws, was printed. The cost of printing the edition was $1,150.12.

The Committee recommends that no change be made in the size, style and composition of forthcoming volumes.

FREDERIC C. CURTIS,
WM. WARREN POTTER,
FRED D. BAILEY,
C. H. PORTER,
Committee.

4. Report of the Committee on Legislation.

To the Medical Society of the State of New York:

Gentlemen: The Committee on Medical Legislation would respectfully report:

During the past year the duties of your Committee have been chiefly directed toward the maintenance of the law creating a Board of Medical Examiners, upon the statute books of the State.

The unwavering support by this Society of the principle that all licenses to practice medicine and surgery should be issued by the State authorities after an examination has determined the course of your Committee on Legislation during the past year.

The law for which this Society labored so long is at last in full operation, and about four hundred candidates will annually become qualified practitioners of medicine within the State. The results of this legislation have already justified the wisdom of those who prompted and promoted it. Nevertheless, the opposition to the entire system is still active, and measures calculated to cripple the work were met in the Legislature last year and defeated; and already this year Assembly bill No. 49 is before the House for the purpose of reducing the examination fee from $25 to $5, thereby rendering the work of the Examining Boards impossible for want of funds. For it is not probable that the people at large will be willing to tax themselves to enable those who desire to practice medicine to secure a license without a proper fee. The State certainly desires the highest grade of Medical Examiners. They cannot be secured unless these actual expenses are at least approximately paid. Your Committee urges your co-operation with the new Committee, in using every endeavor to defeat this really revolutionary measure.

In accordance with a resolution of the Society passed one year ago, your Committee has appointed an auxiliary member in the various counties, whose active efforts we desire to hereby publicly acknowledge.

A somewhat extended experience has convinced the members of the Committee that both branches of the Legislature can be depended upon to prevent the enactment of any law strictly pertaining to medical matters to which the profession is opposed, provided we, as a Society and as individuals, keep the members of the Senate and Assembly informed of its possible interference with advanced medical education resulting therefrom.

In the codifying of the medical laws last year a paragraph providing for the punishment of illegal practice as a misdemeanor may have been omitted, and an amendment restoring that clause is now ready for introduction, and should be promptly re-enacted.

The licensing of midwives has been frequently called to the attention of your Committee, and we are ready to indorse the principle of a State board for the examination and licensing of those who are to practise midwifery. The county of Erie already has a law which fulfills all proper requirements of such a law. We can but hope that any legislation on this subject may not disturb the workings of the excellent system of examination as an essential pre-requisite to practice as a midwife, which now prevails by local

legislation in that county. A bill has been prepared under the auspices of the Medical Society of the county of New York, which, if enacted, will apply to all the cities of the State; and if the requirements of the case are fully met by this bill, as we believe they are, it should receive the united support of this Society.

The Committee notes with satisfaction that the law making it the duty of midwives to report cases of contagious disease of the eye is being enforced in New York city, and that one conviction has taken place under the act.

The duties devolving upon the Committee on Legislation are and must continue to be discretionary in a large degree, for, at the date of this writing, it is impossible to foretell what measures may be brought before the Legislature, in which the medical profession is directly interested. Definite instructions on subjects already pending, however, are considered by the Committee as sometimes advisable.

At this time the profession is somewhat agitated by discussions affecting some of the great charitable institutions of the State. Your Committee ask this Society to consider whether they desire to instruct the Committee on Legislation as to what course they should take, if called before the Legislature, on this general subject.

All of which is respectfully submitted.

D. B. St. John Roosa,
Daniel Lewis,
D. V. O'Leary,
Committee.

5. Annual Report of the State Board of Medical Examiners.

To the Medical Society of the State of New York:

During the past year exemptions from the general medical licensing laws having in large part ceased, the work of the State Boards of Medical Examiners has greatly increased and the statistics may furnish a closer estimate of the labor which will fall upon future boards representing this body. Eight examinations were held during the year 1893. Total number of candidates who applied for admission to the examinations, 326, of whom 296 elected to appear before the State Board. Admitted to examination, 296. Those refused admission to the examinations had defective or insufficient credentials — the essential credentials for *admission* to examinations being (1) 21 years of age; (2) good moral character; (3) having attended a registered and legally incorporated medical college; (4) graduated doctors of medicine; (5) preliminary academic education. Of those admitted there were examined by the State Board, 267; of those admitted there were accepted, 247: rejected, 20; percentage of acceptances, 83; percentage of rejections, 17. The policy which has been set by our State in reserving for itself the last right to pass upon the qualifications of those who desire to practice the profession of medicine within its borders has been fruitful of good results. It stands to the credit of the State that yearly scores of irresponsible persons, doctors under the guise of an M. D. diploma, obtained

without proper restrictions and safeguards, are prevented from imposing on the public, who, under former laws, would have here had a free field for quackery. Other States, mindful of the protection which the licensing laws furnish the public, are following in the wake of our State, and ere long the right to practise medicine in the United States will be as sacred a privilege as it now is in the countries of the Old World.

The promise made last year to elevate the standard of medical requirements has been fulfilled, as can be verified by a comparison of the questions of to-day and a year ago. Whenever a candidate who has been rejected, feeling that his answers have not been properly credited, appeals to the Board for a review of his work, his answer papers are re-marked by each examiner in turn, and the average marking of the seven members is credited to him in the subject under consideration. In this manner no one examiner, even in his own topic, has absolute control of the candidate's fate, and although in most instances the original markings are substantiated, the right to appeal is the candidate's.

Under paragraph 148 of the medical law, upon the unanimous recommendation of a State Board of Medical Examiners, registrations which in the past have been defective because of some error, misunderstanding or unintentional omission may now be validated. During the past year many such cases have come under our notice, and the status of a score or more of physicians has been thus legalized.

Since the organization of the Board, September 1, 1891, the fees accruing to the members for services rendered, have amounted to $245, or an average of less than $125 per year for each examiner of our Board. During this period the expenses have been over $7,800. These facts are related in order to call to your attention an added attempt to nullify the law, consisting of a bill, now before the Legislature, reducing the examination fee from $25 to $5. If this bill becomes a law there will be no funds to provide for the examinations, and the efforts of years of persistent work culminating in the favorable legislation of 1890 will become a dead letter. It is proper to state that the annual Exemption Bill has also made its appearance again. We are assured that the Committee on Legislation is alive to the situation and will use every honorable effort to prevent the passage of these measures. In our opinion, the Society should take action on this matter at once, in order that at the hearing before the Committee this afternoon the views of this body may be presented by the Society's Committee on Legislation.

The syllabus, now in course of preparation, promises to be a volume of great importance. From letters and opinions received, it is more than likely to constitute a guide for American students in the pursuit of their medical studies, at the same time furnishing a text for those attempting the licensing examinations. Being the first work of its kind, the labor in its production is coupled with many difficulties. Every effort is being made to produce a volume which will be scientific and complete.

At the summer meeting of the Board of Regents the nominations for succession in office presented by this Society were acted upon, and Drs. William C. Wey and George Ryerson Fowler were reappointed for a term of three years. The Board, therefore, continues to consist of the members who were first appointed.

At the annual meeting of the Board, held yesterday, the following officers were elected for the ensuing year:

President — William C. Wey, of Elmira.

Secretary — M. J. Lewi, of New York.

Question and Syllabus Committee — G. R. Fowler and M. J. Lewi.

Respectfully submitted.

M. J. LEWI,
Secretary.

6. REPORT OF THE COMMITTEE ON HYGIENE.

1. The Exclusion of Cholera.
2. Care of the Insane.
3. Prevention of Tuberculosis.
4. Efforts to Limit the Spread of Tuberculosis and Diphtheria.
5. District Hospitals for Infectious and Contagious Diseases.

The Exclusion of Cholera.

At the beginning of the cold season in Europe last year (1892) the prediction was made by persons familiar with the history of cholera epidemics, that in the warm season of this year (1893) the disease would be found in all parts of Europe, and there was a general expectation on the part of sanitary authorities that it would enter this country and considerably increase the death-rate in our cities. Although the epidemic at Hamburg had run its course, and there had been no serious outbreak in any other part of Western Europe, yet it was known that the plague lingered in those parts of Russia where the inhabitants had fallen into a condition of destitution and were weakened by other prevailing diseases. Throughout the winter certain provinces of Russia continued to be infected. With the coming of spring the disease began to move westward again, and the early appearance of it upon the coast of France excited much alarm.

It became necessary for our government to take new precautions for the exclusion of cholera. The memorable experience of the quarantine officers at this port in the autumn had shown that emigrants had been shipped from European ports when these were infected, under conditions which were very favorable to the development of the disease on board ship during the voyage. Our quarantine authorities had been successful in confining the disease to the quarantine islands; but it was seen that the danger to which this country was exposed would be minimized if the quarantine work should be done on the other side of the Atlantic. Our government undertook, through the agency of the Marine Hospital Bureau, to cause the shipment of emigrants to be made at the ports of departure under the conditions and all the precautions suggested by modern sanitary science.

In each of the leading European ports was stationed a surgeon of the Marine Hospital Service, whose duty it was to supply information to the head of the Bureau, Dr. Wyman, concerning the progress of the disease and the sanitary condition of the ports; to supervise the shipment of emigrants; to enforce the rules of the Bureau with respect to disinfection and the confinement of emigrants under sanitary observation for a certain number of days before their departure; to give or to withhold bills of health

and generally to take all possible precautions that could prevent the transportation of infected passengers or baggage to this country. It was not impossible to compel obedience in a foreign land to the rules of the Bureau at Washington, for steamship companies could easily be punished for disobedience. It should be said, however, that nearly all of the companies engaged in transporting emigrants not only submitted cheerfully to the restrictions imposed, but also assisted the agents of the Bureau in their work.

It has from time to time been pointed out what these representatives of the Marine Hospital Bureau were doing at Hamburg, Naples, Genoa, Antwerp, Glasgow, and elsewhere. Their labors have been of great value to the people of this country, and in some instances to the people of Europe. It will be recalled that the presence of cholera in Naples was first made known to the world by the Bureau's inspector at that port (Dr. Young), and that for two weeks after the announcement the authorities of the city and the diplomatic representatives of Italy in other countries sought diligently by denials to conceal the truth which he had disclosed. In this case all Europe was under obligations to the American inspector. It was due to his reports and recommendations that immigration from Naples was suspended; and it is quite probable that if we had had no sanitary agent in that city, the quarantine authorities at this port would have had an experience not less disagreeable and dangerous than that of 1892. It is true that one infected ship (the *Karamania*) did arrive in this harbor ; but at the time of her departure from Naples there had been only two or three cases of cholera in the city, and these had been concealed by the authorities. Moreover, it was only with the greatest difficulty, owing to the attitude of the city authorities and the unwillingness or inability of the steamship companies to assist the inspector, that provision was made at that port for the isolation of emigrants under observation for a few days before their departure. At a later date another infected steamer (the *Russia*) came across from Hamburg; but the number of cases on board was small, and the disease was easily suppressed. In this instance the cause of infection appears to have been an accidental and temporary pollution of the Hamburg water supply.

We have reviewed briefly at this time the work of the Bureau's representatives in foreign ports because they are now to return to this country. In the opinion of Dr. Wyman the time of danger is past, and these agents can safely be recalled. The Bureau will continue to be represented, however, in Paris, Berlin, Naples, and London by agents who will be on guard. But the retention of agents at all points of departure is no longer required. The practical value of the new system has been clearly demonstrated, and both the Marine Hospital Bureau and the competent and faithful gentlemen who have represented it in Europe deserve the thanks of the American people. We have been speaking only of the work done in foreign ports ; but those who appreciate the value of the safeguards interposed there by the general Government will not overlook the labors of Health Officer Jenkins and his assistants in the quarantine service of the port of New York, who have had to deal with the enemy at the very gates, and who have shown this year once more their ability to make ample defense at the point where the danger of invasion is greatest.

New Quarantine Regulations — The Treasury Department has recently issued a new order, based upon the act of February 15th, 1893, which grants additional powers to the Marine Hospital Service. The first article of the regulations provides for the inspection of all vessels from domestic ports where yellow-fever, cholera, typhus-fever, or small-pox is prevailing. The new regulations authorize the Supervising Surgeon-General from time to time personally, or through a duly detailed officer, to inspect the maritime quarantines of the United States, State and local as well as national, for the purpose of ascertaining whether the quarantine regulations prescribed by the Treasury Department have been or are being complied with. The officers are authorized to board any incoming vessel, or any vessel detained at quarantine, and to examine all portions of the quarantine establishment for this purpose, with a view to certify, if need be, that the regulations are being enforced.

Superintendent Kimball, of the Life-Saving Service, issued an important circular-letter, September 4th, 1893, to all keepers of life-saving stations on the Atlantic seaboard, and especially to those in and about New York. The circular instructs the officials of the Life-Saving Service to cooperate with the officers of the Marine Hospital Service in preserving a strict quarantine on infected ships. To this end the surfmen are instructed to keep a close lookout for all matter, such as bedding, clothes, vegetable matter, etc., which may wash ashore. This matter they are directed to handle with rakes only, and to dry and burn it. They are also instructed to see that no persons who may escape from ships detained at Quarantine are permitted to land. In a general way, the Life-Saving Service will assist all in its power to maintain rigid quarantine when it is established, so as to lessen the chances of infection to this country through the means of diseased household articles.

Care of the Insane.

The philanthropic men and women who, by years of agitation, destroyed the inhuman system of imprisoning hundreds of the insane poor of the State in county alms-houses, will be glad to know that the "State care" system is now in successful operation. All of the insane poor in the county alms-houses have now been removed to the State hospitals for the insane, and those hospitals now contain an insane population of 8,700 persons. There are 8,800 insane men and women in the asylums of Kings and New York counties, so that the total insane population of the State in all the State asylums for the insane is about 17,500.

It was upon October 1, 1893, that the "State care" system went into full operation by the State assuming the financial responsibility for the support of all its insane poor except those of Kings and New York counties. This responsibility is a great one, because it imposes upon the State the duty of raising annually $1,300,000 for the support of the insane poor, and then of economically expending this large sum. The Legislature and the Governor were naturally unwilling that such a large amount of money as $1,300,000 should be put into the hands of the hospital trustees without some independent State authority being established to see that the money was wisely spent. Accordingly, the State Commission in Lunacy were empowered to

revise and approve itemized estimates to be monthly submitted to them by the hospital trustees as to their needs for the next succeeding month. Not a dollar of the $1,300,000 can be used to pay hospital expenses without their consent first being obtained. Substantially the Commission in Lunacy is a State Finance Board, which supervises the expenditure of every penny appropriated for the support of the State hospitals.

The work already done as a financial board is of a highly interesting character. With the aim of learning precisely what amount of food is needed for the maintenance in good health of an insane patient they requested Dr. Austin Flint, Professor of Physiology and Physiological Anatomy in the Bellevue Hospital Medical College of New York, to state to them what articles of food and their amount each person requires to sustain life. They further stated that they desired each insane patient to have "a generous diet." Dr. Flint made a careful report in response to this request. He recommended, among other things, that good cooks should be hired for each of the hospitals. "Skillful cooking," he says in his report, "not alone contributes much to the comfort and well-being of patients, but, by reducing waste of material to the minimum, is an important element in economical administration. While it may be proper to provide for ordinary paupers and criminals little more than enough to keep them in fair physical condition, the insane poor, though a charge upon the State, should receive better consideration. Again, a most important part of the treatment of the insane relates to general nutrition; and many patients suffering from mental diseases require a great abundance of nutritious food, which contributes very largely to their cure, and thereby tends to relieve the State from their care and maintenance for a long period." Dr. Flint recommended the following quantities of supplies for one hundred persons for thirty days:

Meat, with bone, including salt meat, fresh and salted fish and poultry	2,250 pounds
Flour (may be in part substituted by corn meal and maccaroni)	3,000 pounds
Potatoes	1,500 pounds
Milk	750 quarts
Eggs	493 dozen
Sugar	429 pounds
Butter	429 pounds
Cheese	429 pounds
Rice	108 pounds
Hominy	108 pounds
Oat meal	108 pounds
Coffee	215 pounds
Tea	26 pounds

The Commission in Lunacy, armed with this report, were able to revise with intelligence the estimates of the superintendents of the eight State Hospitals. Some of the hospitals were buying an excessive quantity of food; others not quite sufficient. Again, others were buying food of in-

ferior quality. These estimates were equalized, and each hospital was put upon the same basis, *pro rata*, as regards quality and quantity of food, etc.

The insane patients in every hospital will get equally good food and an equally large quantity of it. Moreover, they receive the same scientific medical treatment. It will be immaterial to the friends of an insane patient as to which one of the hospitals shall receive the afflicted person. Formerly there was great inequality between the hospitals. The chronic cases were packed off to the Willard and Binghamton Asylums, while those cases which were thought to be curable were sent to hospitals where they were better fed and received better medical care. Now every institution is on a hospital basis and will enjoy the same standard of good care of its patients.

The Commissioners in Lunacy are aiming to reduce the expenses of maintaining the hospitals without in any way lowering the character of the care they give to patients. With this aim they suggested to the eight superintendents of hospitals that they should appoint from their number a committee of three to procure wholesale rates for the State supplies of the institutions in their care, namely, coal, wood, groceries, flour, sugar, etc. This Committee on Supplies solicit proposals for the large quantity of such articles needed by the hospitals monthly, instead of each hospital buying separately, as formerly, and thus in open competition secured most excellent terms for the State. The State hospitals thus in future will buy by wholesale, instead of, as it were, by retail. Having a population of 8,700 patients and about 2,000 employes to feed, the Committee on Supplies can arrange for large purchases at low rates, and as the State pays cash, exceptionally low rates may be obtained. The hospitals consume 250 tons of sugar a year and about 800 barrels of flour a month.

In the course of the month of October the Commissioners in Lunacy cut down the estimates $53,000, and for the month of November they have cut them down $25,000. Dr. MacDonald thinks that further great economies can be made. He said:

"We are enforcing a policy of having the inmates of insane asylums make all their own clothing. The inmates of New York's asylum on Blackwell's Island do so, and it is perfectly feasible in all the State hospitals. All farm work also ought to be done by the inmates of the hospitals. It will be good for the health of the patients to have them work out of doors. All the vegetables and farm products — hay and the like — thus can be raised by the inmates of the hospitals, and large sums saved. The inmates of the hospitals also ought to make the mattresses of these institutions. We are gradually substituting hair mattresses and woven wire springs for the old straw beds."

One of the novel reforms which the Commissioners in Lunacy have started out to bring about is to minimize the abuse of tobacco in the hospitals. Dr. MacDonald says:

"It is highly unwise to give insane patients, who are a peculiarly nervous class of people, tobacco, either to chew or to smoke. We found upon investigation that the supplying of tobacco to the inmates of the hospitals was costing the State a large sum of money annually, needlessly it is thought. But that was not the worst of it; the health of the patient is seriously affected and when smoking is permitted there is danger of fire. One hospital has had four fires in the last year — all, there is reason to think, the result of tobacco. There is no danger to the health of patients in suddenly depriving them of their tobacco. On Ward's Island there are

2,000 men patients who have not used tobacco in any form since 1874, and they are in excellent health. We have, therefore, refused to allow any money in the hospital estimate for the use of tobacco."

Still another reform which has already been accomplished by the Commissioners in Lunacy is the cutting off from the State's hospital table of a large number of relatives of officers of the State hospitals. Commenting upon this fact, Henry A. Reeves, of the Commission, said:

"We required the hospital authorities to give us the name and occupation of every person who lived in the hospital under their charge. In this manner we learned that a good many relatives—cousins, aunts, nephews—of hospital people were being supported by the State without rendering any service for it. We have requested the Attorney-General to give us his definition of the term 'family,' for it seems to be an elastic term which covers all kinds of people. Hospital officers receive board for their 'families;' but we do not think this means their cousins and aunts as well. We have refused to consent to these persons being boarded at the expense of the State. We have also declined to consent to a large number of people attached to the hospitals having horses and carriages — at least at the State's expense. One asylum we found had four florists. We judged this to be an excessive number, and we declined to agree to the payment of three of them. The places of the three dismissed florists can well be taken by able-bodied inmates of the hospitals. One florist is sufficient for each hospital."

It is thus obvious that the State Commission in Lunacy is intent upon having the 8,000 inmates of the asylum fed well; but at the same time is determined to keep down the expenses of these institutions. The policy is an excellent one. The taxpayers of the State desire the insane poor to have abundant food and to be well lodged; but they also wish that the expenses of the hospitals shall be kept at a low point.

A Report of Tuberculosis.

Tuberculosis victims in the United States number 163,500 annually. Of these 141,000 are charged to consumption, 12,000 to tubercular meningitis and 10,500 to scrofula. Each death is asserted to represent two years of sickness. That means that there are now 327,000 persons in the United States dying of tuberculosis. The money cost of this enemy of life is estimated to be greatly in excess of $100,000,000. Statistics show that the ravages of tubercular diseases are being slowly reduced, and scientists are not altogether without hope of discovering a preventive or a remedy for a class of disease whose victims are more numerous than those of war.

Dr. Hermann M. Biggs, the Chief Inspector of Pathology, Bacteriology and Disinfection in the Health Department of New York, recently made a lengthy report to the Department regarding the contagiousness of tuberculosis, accompanied by a number of recommendations. His explanation regarding the nature of the disease was thus summarized:

First, tuberculosis is a contagious disease, and is distinctly preventable.

Second, it is acquired by the direct transmission of the tubercle bacilli from the sick to the well, usually by means of the dried and pulverized sputum floating as dust in the air.

Third, it can be largely prevented by simple and easily applied measures of cleanliness and disinfection.

Dr. Biggs, in the report, refers to tuberculosis as the most common and fatal disease which prevails in New York, and makes the following statements:

In 1892 more than six thousand deaths were reported to the New York City Health Department as due to tuberculosis. While this condition of affairs and its significance have long been recognized by the Board of Health, owing to various considerations well known to those familiar with tuberculosis, this disease has not up to this time come under the official sanitary surveillance of the Department.

His recommendations are appended in part as follows:

First, that there be systematically disseminated among the people, by means of circulars, publications, etc., the knowledge that every tubercular person may be a source of actual danger to his associates and his own chances of recovery diminished if the discharges from the lungs are not immediately destroyed or rendered harmless.

Second, that all public institutions, such as asylums, homes, hospitals, dispensaries, etc., be required to transmit to the Board of Health the names and addresses of all persons suffering from pulmonary tuberculosis.

Third, that special inspectors be assigned to duty for the investigation of this disease.

Fourth, that the Board urge upon hospital authorities the importance of separation, so far as possible, in the hospitals of this city, of persons suffering from pulmonary tuberculosis from those affected with other diseases.

Fifth, that the Department of Charities and Correction of this city be requested to set apart one of the hospitals under its charge, to be known as the "Consumptive Hospital," to be used for the exclusive treatment of this disease.

Sixth, that the Board undertake the bacteriological examination of the sputum for diagnosis in every case of doubtful character in hospitals or private dwellings or tenement-houses, where the physician in attendance desires that this should be done.

Seventh, that all physicians practising their professions in this city be requested to notify the Board of Health of all cases of pulmonary tuberculosis coming under their professional care.

Pulmonary Consumption.— On November 28 Dr. Biggs sent the following communication to the Hon. Charles G. Wilson, President of the Board of Health of New York. This report is equally applicable for the State at large, and is therefore herewith presented.

The most common and fatal disease which prevails in New York is both contagious and preventable. In 1892 more than six thousand deaths were reported to the New York City Health Department as due to tuberculosis. While this condition of affairs and its significance has long been recognized by the Board of Health, owing to various considerations well known to those familiar with tuberculosis, this disease has not up to this time come under the official sanitary surveillance of the Department.

In 1889 the Board of Health requested its pathologist to formulate a brief statement regarding the contagiousness of tuberculosis and the best means for its restriction. In compliance with its request a report on the nature and prevention of tuberculosis was made. The chief purpose of the Board then was the dissemination of the knowledge of the contagiousness of tuberculosis and the education of the people as to the communicable and preventable character of this disease. The report of the pathologists and

circulars based upon it detailing measures of prevention were then widely published and circulated by the Department.

In the annual report of the New York City Health Department for 1892 you have presented an analysis of the mortality tables of pulmonary disease, showing the distribution, the ratio of increase and decrease in wards, relation to density of population, etc., of pneumonia, tuberculosis and bronchitis, which has brought out many important facts regarding the spread of these diseases, and especially of tuberculosis, and afforded many suggestions as to their sanitary surveillance and investigation.

The time, it seems to me, has now arrived when it becomes the duty of all sanitary authorities to assume a more aggressive attitude toward this the most widely prevalent and fatal disease to which the human race is subject, and I desire to present to the Board for its consideration certain suggestions as to the definite means which should at once be taken to prevent and restrict tuberculosis.

It may not be amiss, in order to bring out more forcibly the immediate necessity of such a course, to recount some of the known and now generally accepted facts regarding the nature of this disease. The disease known as tuberculosis may affect any organ or tissue of the body. When it affects the lungs it is called pulmonary tuberculosis, or consumption. In this form it causes one-fourth of all deaths occurring in the human being during adult life, and more than one-half of the entire adult population at some time in life acquire it. It has been proved beyond a doubt that a living germ called the tuberculosis bacillus is the cause, and the only cause, of tuberculosis. When these germs find their way into the body they multiply there, if favorable conditions for their growth exist, and produce small new growths or nodules (tubercles), which tend to soften. The discharges from these softened tubercles containing the living germs are thrown off from the body. In pulmonary tuberculosis the expectoration contains the germs often in numerous numbers. It has been shown that many millions of tubercle bacilli may be discharged under certain conditions in the course of twenty-four hours by one person suffering from tuberculosis. The germs thus thrown off do not grow outside the living human or animal body except under artificial conditions, but they may retain their vitality and virulence for long periods even when thoroughly dried. As tuberculosis can only result from the action of these germs, it follows, from what has been said, that when the disease is acquired it must result from receiving into the body the living germs that have come from some other human being or animal affected with the disease; in other words, it cannot occur except by direct communication from some other individual or animal suffering from the tuberculosis.

While the meat and milk of tuberculous cattle may be important sources of danger, yet the disease is acquired, as a rule, through its communication directly from man to man. The expectoration of tubercular persons frequently lodges in places where it afterward dries, as on handkerchiefs, clothing, carpets, floors, the streets, and so on. After drying, it is very apt, in one way or another, to become pulverized and float in the air as dust. Pulmonary tuberculosis or consumption (the most common form of the disease) is usually produced by breathing air in which the living germs are suspended as dust. It has been shown experimentally that dust collected from the most varied points in hospital yards, asylums, prisons, hotel bedrooms, private houses, etc., where consumptive patients have lived, is capable of producing the disease. Such dust may retain for weeks, and even months, its power of causing the disease, and persons inhaling the air in which this dust is suspended breathe in the living germs. It should, however, be distinctly understood that the breath of tubercular patients and the moist sputum received in proper cups are not elements of danger, but only the dried and pulverized sputum. The breath and moist sputum are free from danger because the germs are not dislodged from moist surfaces by currents of air. If all discharges were destroyed at the time of their exit, by far the greatest danger of communication from man to man would be removed.

It is a well-known fact that some persons, and especially the members of

some families, are particularly liable to tuberculosis. So marked and so frequent is the development of the disease in certain families that the affection has long been considered hereditary. We now know that the disease itself is very rarely hereditary, but that there is inherited a liability to the disease, which renders the individual an easier prey to the living germs when once they have gained an entrance.

When the parents are affected with tuberculosis, the children, from the earliest moments of life, are exposed to the disease under the most favorable condition for its transmission; for not only is the dust of the house to contain the bacilli, but the relations also between parents and children, especially between mother and child, are of that close and intimate nature especially favorable for transmission by direct contact. The frequent occurrences of several cases of pulmonary tuberculosis in a family is, then, not to be explained on a supposition that the disease itself has been inherited, but that it has been produced after birth by transmission directly from some other individual.

It follows, from what has been said, that tuberculosis is a communicable — that is, a contagious — germ disease, and that it is distinctly preventable. The means which are most certain to prevent its spread from one individual to another are those of scrupulous cleanliness regarding the sputum. These means are largely within the control of the individual. It should be constantly kept in mind that it is the sputum and the sputum alone which is commonly the important agent in its transmission.

It is furthermore to be remembered that consumption is not always, or even generally, as was formerly supposed, a fatal disease, but that in a very large proportion of cases, if recognized early, it is a distinctly curable affection. An individual who is well on the road to recovery may, if he does not with the greatest care destroy his sputum, diminish by self-inoculation his chances of recovery.

The following facts should be emphatically emphasized :

First, tuberculosis is a contagious disease, and is distinctly preventable.

Second, it is acquired by the direct transmission of the tubercle bacilli from the sick to the well, usually by means of the dried and pulverized sputum floating as dust in the air.

Third, it can be largely prevented by simple and easily applied measures of cleanliness and disinfection.

The time has arrived when the knowledge concerning the causation, extension, and prevention of pulmonary tuberculosis is sufficiently definite to make possible the adoption of important practical measures for its restriction ; yet these measures must at present differ in many respects from the more summary proceedings justified in other more readily transmissible diseases, for it is to be remembered that while tuberculosis is always the result of infection, yet it is far less communicable than some contagious diseases, and with proper precautions victims of this disease may, without endangering others, pursue their usual vocations.

I would, therefore, recommend, first, that there be systematically disseminated among the people, by means of circulars, publications, etc., the knowledge that every tubercular person may be a source of actual danger to his associates, and his own chances of recovery be diminished if the discharges from the lungs are not immediately destroyed or rendered harmless.

Second, that all public institutions, such as asylums, homes, dispensaries, etc., be required to transmit to the Board of Health the names and addresses of all persons suffering from pulmonary tuberculosis within seven days of the time when such persons first come under observation.

Third, that special inspectors be assigned to duty for the investigation of this disease ; and whenever the Department has become aware of the existence of families or premises where tuberculosis exists, or has recently existed (as in case of death or removal), it shall be the duty of these inspectors to visit such premises and deliver proper circulars and give suitable information to the persons residing there and take such specific measures of disinfection as are required in each case.

Fourth, that the Board urge upon hospital authorities the importance of separation, so far as possible, in the hospitals of this city, of persons suffering from pulmonary tuberculosis from those affected with other diseases, and urge that proper wards be set apart from the exclusive treatment of this disease.

Fifth, that the Department of Charities and Correction of this city be requested to set apart one of the hospitals under its charge, to be known as the "Consumptive Hospital," to be used for the exclusive treatment of this disease; and that, so far as practicable, all inmates of the institution under its care suffering from tuberculosis be transferred to that hospital.

Sixth, that the Health Department undertake the bacteriological examination of the sputum for diagnosis in every case of pulmonary disease of doubtful character in hospitals or private dwellings or tenement-houses where the physician in attendance desires that this should be done, this procedure to be carried out with a view of obtaining definite knowledge upon which the proper sanitary surveillance of those suffering from tuberculosis can be based.

Seventh, that all physicians practising their profession in this city be requested to notify the Board of Health of all cases of pulmonary tuberculosis coming under their professional care.

For the proper performance of the preliminary work as detailed above, a special corps of medical inspectors and disinfectors should be provided, whose duty should be entirely confined to work connected with the investigation of tuberculosis and the carrying out of the means to be taken for its prevention.

Finally, in urging the adoption of this report, or the adoption of some action similar to what it recommends, I would add that there is, it seems to me, a widespread feeling among the medical profession and the laity that some efficient means should be taken at once to prevent the great and unnecessary loss of human life caused by consumption, and that it is imperative that sanitary authorities adopt such means as science has shown to be practicable and efficient in controlling the ravages of this disease.

Efforts to Limit the Spread of Tuberculosis and Diphtheria.

The following report, by Dr. Cyrus Edson, Chairman of the Sanitary Committee of the Board of Health of the city of New York, was adopted by the Board, July 13:

The report of Dr. Hermann M. Biggs, the bacteriologist of this Department, relative to tuberculosis, is, in the opinion of the Chairman of the Sanitary Committee, timely and well advised. The subject is well summed up in three facts relative to the disease set forth, to-wit:

First, tuberculosis is a contagious disease, and is distinctly preventible; second, it is acquired by direct transmission of the tubercle bacilli from the sick to the well, usually by the means of the dried and pulverized sputum floating as dust in the air; third, it can be largely prevented b simple and easily-applied measures of cleanliness and disinfection.

The following recommendations, based upon the foregoing premises, are approved and offered to the Board for its consideration:

First, that a circular be prepared for the distribution among the people, setting forth the danger of contagion from tuberculosis, and the fact that the discharges from the lungs of tubercular patients are dangerous not only to others, but also to the patients afflicted, and also setting forth the danger of expectorating in places where the sputum is liable to be dried and carried by the air in the form of dust.

Second, that physicians and other persons to whom the knowledge of the existence of a case of tuberculosis may come be requested to report to this Department all such cases within seven days of the time when such sick person comes under observation.

Third, the medical sanitary inspectors should, as a part of their duty, investigate cases of the disease reported and take specimen of the sputa for

diagnostic purposes, as is done in cases of diphtheria. These specimens should be transmitted to the division of bacteriology for examination, and the division of bacteriology should be properly equipped for such examination for the purpose of obtaining definite knowledge upon which the proper sanitary surveillance of those suffering from tuberculosis can be based. Upon the verification of the diagnosis, the inspector should visit the physician reporting each case, and request him to fully instruct his patient and the persons with whom he is in contact concerning the nature of the disease and the danger of its transmission. If the case is reported by the layman, or if the physician prefers that the inspector should assume the aforesaid duty, then the inspector should personally perform this service.

Fourth, the following preamble and resolutions should be adopted and sent to each of the general hospitals and to the Commissioners of Charities and Correction.

Whereas, Tuberculosis is a contagious disease and is distinctly preventable; and

Whereas, It is acquired by the direct transmission of the tubercle bacilli from the sick to the well — usually by the means of the dried and pulverized sputum floating as dust in the air; and

Whereas, It can be largely prevented by simple and easily applied measures of cleanliness and disinfection; and to some extent by segregation of those suffering from it; be it therefore

Resolved, That this Board urge upon hospital authorities of the city of New York the importance of separation so far as possible, in the hospitals in this city, of persons suffering from pulmonary tuberculosis from those affected with other diseases, and urge that proper wards be set apart for the exclusive treatment of this disease; and be it further

Resolved, That the Commissioners of Charities and Correction be recommended to take such steps as will enable them to have and control a hospital to be known as the "Consumptive Hospital," to be used for the exclusive treatment of this disease; and that, as far as practicable, all inmates of the institutions under their care suffering from tuberculosis be transferred to this hospital.

Fifth, it is recommended that the disinfecting corps disinfect places where evidence of infection from tuberculosis exists whenever, in the opinion of the chief inspector of contagious diseases, it shall be necessary.

Sixth, it is recommended that suitable receptacles for sputa (cuspidors) be provided and properly cared for in all places where persons are brought together or caused to congregate for any purpose, especially in factory buildings.

The Board of Health has issued the following circulars to physicians, prepared by Dr. Hermann M. Biggs:

During the last few months a series of investigations has been made in the bacteriological laboratory of the Health Department to determine how long the Loeffler bacilli remain in the throat after the disappearance of all false membrane in cases of diphtheria. The results obtained are extremely significant, and have caused the Department to establish a new rule regarding the discharge from observation of patients who have suffered from diphtheria and regarding the time of disinfection of the premises.

During the past three months 450 cases of true diphtheria have been subjected to repeated bacteriological examinations performed at short intervals during the course of the disease and during convalescence. In all of these cases cultures were made at the beginning of the disease, again after the lapse of three or four days, and finally at short periods after the complete disappearance of the false membrane until the throat was found to be free from the diphtheria bacillus. In 245 of these 450 cases the diphtheria bacilli disappeared within three days after the complete separation of the false membrane; in 160 cases the diphtheria bacilli persisted for a longer time — namely, in 103 cases for seven days, in 34 cases for twelve days, in 16 cases for fifteen days, in 4 cases for three weeks, and in 3 cases for five weeks after the time when the exudation had completely disappeared from the upper passages.

In many of these cases the patients were apparently well many days before the infectious agent had disappeared from the throat. These results

show that in a considerable proportion of cases persons who have had diphtheria continue to carry the germs of the disease in their throat for many days after all signs of the disease have disappeared. No doubt the disease is largely disseminated by these persons, who are apparently well and who mingle with others while their throat secretions still contain the diphtheria bacilli.

These experiments have led the Health Department to adopt the rule that no person who has suffered from diphtheria shall be considered free from contagion until it has been shown by bacteriological examination, made after the disappearance of the membrane from the throat, that the throat secretions no longer contain the diphtheria bacilli, and that until such examinations have shown such absence the person must remain isolated and under observation. Disinfection of the premises, therefore, will not be performed by the Department until examination has shown the absence of the organisms.

Secondary cultures, as in the case of primary cultures, may be made by the attending physician if he so desires; otherwise they will be made by the inspector of the district in which the case occurs. This applies only to cases occuring in boarding-houses, hotels, and tenement-houses, not to those occurring in private houses.

In this connection an interesting observation has been made showing that in diphtheria cases which have been subjected to frequent irrigation with antiseptic solutions from the beginning of the disease the bacilli as a rule disappear far more rapidly than in those in which such irrigations have not been employed. The Department would feel grateful for any data which physicians of the city may furnish as to the treatment employed in each case, in order that more reliable conclusions may be reached as to the best mode of treatment.

The Board of Health of the city of New York has issued the following circular of information concerning the use of bacterial cultures for the diagnosis of diphtheria:

NEW YORK, *July*, 1893.

Recent bacterial investigations have shown that a considerable proportion of the cases of pseudo-membranous and exudative inflammations of the throat and upper air passages, commonly considered as diphtheria, and having the anatomical appearances found in diphtheria, are not true diphtheria. These cases may be called pseudo, or false diphtheria.

It has also been shown that a considerable number of cases which are apparently false diphtheria, prove, on bacterial examination, to be true diphtheria. While in true diphtheria the mortality is very high and the danger of transmission to others is great, in false diphtheria the mortality is low and the danger of infection slight. The differential diagnosis between true and false diphtheria can be made by bacteriological examination within twelve hours, while without this the differentiation is difficult or impossible.

The Health Department is now prepared to make use of bacterial cultures for diagnosis in all cases of suspected diphtheria occurring in the city, and desires that in every case either the physicians should themselves make the inoculations, or should authorize an inspector to make them. They should be made in every suspicious case at the earliest possible moment, for during convalescence the specific organisms often disappear from the throat, and the full benefit of a positive diagnosis is not obtained unless it is made early in the disease.

The inoculations are made by gently rubbing a cotton swab against the throat and then drawing it over the surface of the culture medium. When the physician desires to himself make the culture (and this is usually the better plan, for it can be done earlier and is more agreeable to the family), he can obtain, free of cost, a culture tube and swab, and the simple directions necessary for their use, at any one of the druggists whose addresses are given below. After the inoculation the tubes are to be returned at

once to the druggist from whom they were obtained. The tubes will be collected by the Department every evening.

In cases where an inoculation has not been made by the attending physician, the medical inspector will make one, unless for any reason the physician requests that none be made when he notifies the Department of the case.

The diagnosis will be ready by noon of the following day. The attending physician can obtain this immediately by telephoning to the laboratory; or, when this is not done, he will be notified by mail. Cases which prove to be false diphtheria will not be visited by the Health Department inspectors. Cases, on the other hand, which prove to be true diphtheria, will be subjected to the usual rules and regulations covering contagious diseases.

District Hospitals for the Care of Infectious and Contagious Diseases.

Attention is again invited to the recommendations of the report of the Committee on Hygiene for 1892, in which it was urged that district hospitals for the care of infectious and contagious diseases be *speedily provided*, and also that refuges for well persons, especially for those from houses where contagious diseases exist, *be provided*. In the establishment of Willard Parker Hospital, with its seventy beds, it was hoped that this would be the first of many. It has accomplished all that could be expected, and nobody has had fault to find with it during the years of its existence. But more such hospitals are required. To quote the language of the report of 1892: "We require a second hospital near the Battery, a third at West Eleventh or Twelfth streets, on the North River, a fourth between Sixtieth and Seventieth streets, North River, and a fifth one at least in Harlem." The most serious cases — exactly those which are most in need of hospital isolation and treatment — cannot be transported to a distant part of the city without risk of fearful increase of mortality. The more numerous the accommodations the more they will be appreciated and sought after. Indeed the Willard Parker is so distant from most habitations that the transfer of a patient is given up by many a family as a hopeless task, even where the existence of that charity is well known. If there was such an institution in various parts of the city every householder would be acquainted with the fact, and the beds would not be vacant except in the seasons of comparative immunity.

Another such difficulty is connected with the means of protecting the well against contagion from a brother or sister sick in bed. The tens of thousands of families living in two rooms, one of which is dark, or in two light rooms with a few dark closets between them, or even those who have a whole floor to themselves are in a hopeless position. Father and mother — or mostly the mother alone — take care of the sick and the well. No disinfection is of any use where the immediate contact is constant and unrestricted.

The grave question arises where to send the well children. Relatives and friends have children of their own, and refuse to accommodate those who have been exposed to the infection, so they have to remain until they are taken sick and pay the penalty of poverty or of insufficient care on the part of the family and on the part of society at large, either with temporary or permanent suffering or extermination.

Therefore, besides new hospitals to receive the sick as soon as they are taken, there should be stations, refuges — call them what you please —

where those children could be housed until the sick at home have either recovered or have been removed and their residence, bedding, and furniture have been thoroughly disinfected. The number of those thus cared for would easily grow into hundreds and shortly into thousands. Houses arranged for this purpose ought to contain domitories and also provide rooms for such as can afford to pay for superior accommodation. Perhaps the appreciation of the blessing procured and of the calamities averted both from individuals and the communities by the execution of such a plan will so impress a wealthly fellow-citizen as to induce him to make the experiment with a hundred or two hundred beds.

Philanthropic people of the city of New York have seen fit, in connection with some charity or society organization, to establish what are called "day nurseries" for the care of children whose parents are obliged to go out to a day's work. These children are cared for from seven in the morning until seven in the evening, in the majority of cases without pay. An extension of this plan to include the night as well as the day would initiate the idea of a refuge for well children.

Diphtheria, scarlet-fever, or measles in a tenement-house means disaster to at least several of its inmates. During the year 1893 there were 6,504 cases of diphtheria, 5,764 cases of scarlet fever, and 7,122 cases of measles reported to the Health Department. To how great an extent relief might have been obtained over the dire disaster following in the track of such evils by the establishment of places of refuge can only be determined after thorough trial of a plan tending to limit what seems to be needless exposure.

Attention has also been called to the propagation of diseases in school-houses, by school-books, by the contact of clothing in the clothes-closets — which closets, in the majority of cases, are dark rooms without ventilation and through which usually a coil of steam-pipe runs.

Clothing is often hung up damp. The increase of heat during the six hours in which they are hung there furnishes as good an incubator for the propagation of germ growth as is usually found in a well-equipped biological laboratory.

Dr. Moreau Morris, of the New York Board of Health, has presented a report showing the result of his investigation of certain common practices in public schools. Dr. Morris has found that in all the schools he visited the children used the slates and pencils in common. The children are in the habit of putting the pencils in their mouths, and in that way communicate the disease. Dr. Morris condemned the use of slates in schools altogether. He also recommends that books which have been used by children who were sick should be destroyed, and that paper book covers should be substituted for muslin.

Respectfully submitted,

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For the Committee.

THE ANNIVERSARY ADDRESS.

THE PHYSICIAN OF SACRED HISTORY.

By HERMAN BENDELL, M. D.

ALBANY.

To speak of the Bible and things biblical before an assembly of medical men in the light of the undoubted fact that this of all the learned professions contains the most doubters; the most of that class of men who decline to accept theories which are incompatible with science, and from whose midst have sprung innumerable philosophers, whose iconoclastic views have tended to brand scriptural literature as erroneous, and even ridiculous — to speak of the Bible before such a body seems at the outset a thankless undertaking. But as we sometimes take a case and prescribe or operate, knowing that the patient could die just as comfortably without our aid, so do I approach this pleasant task, in the hope that I may throw a little light on a neglected subject.

There is scarcely a great branch of thought in which some biblical character has not preceded and held an important place; thus the art of war had its exponent in Judas Macabaes, state craft a Moses — the poets to-day repeat the words of David, while jurists quote the Solomonian wisdom. The architecture of Hiram and the music of Korah, are among the themes from the Bible which even the scientist, the "atom and the protoplasm man" will accept; yes, even the science of navigation has its heroes in Noah and Jonah, but while the laws of self preservation were as strongly developed then as now, while love and affection stimulating man to save the lives of others existed then as now, it seems strange that no one name shines forth as the great healer, and that the

Samaritan alone (a collective term) poses as the doctor of the Holy Writ. The priests and priest-kings studied the hieroglyphical or sacred literature of which medicine was an important branch. Samuel was the chief of a school of prophets or magio-priests, Solomon, King of Israel, was a great botanist, geologist and a pharmacist, as well as pontiff, ruler, legislator and moral philosopher.

That there were doctors in those days no one can doubt, for then as now, men were but human, and committed the same indiscretions as they do to-day, and suffered the same consequences, and where is the place to-day so small, so cold, so hot, or so any thing, where the doctor is not. They had doctors, and what is more, and what lessens the breach between this and past ages and shows that the people then were influenced as we are to-day, susceptible as we are, easily played upon as we are, and like credulous, they had that ever present, bombastic parasite — the quack.

All sorts of amulets were believed in and worn by the credulous. One warded off the evil eye, another prevented the falling illness, here we find one that eased the troubled mind, and there another that dried the tears; the habits, dress and customs were such that modern ailments were not provided with anti-charms, or doubtless, baldness, ingrowing nails, facial blemishes and the various ills which people believe themselves afflicted with, would have had, each its own and particular amulet or charm.

But one fact becomes self-evident to the student of this question, it shows itself through all the ages, and is as true to-day as it was in the misty past, and that is this: the philosopher and the physician were ever the opponents of and the antagonists of that branch of the priesthood with whom soothsaying, mystery and miracle were stock in trade.

As far back as we have any records, we find the physician playing an important part in Egypt, and from the Egyptians the Israelites acquired much knowledge on the subject, which they brought with them out of the land of bondage. The priests are credited by many as having been the only practitioners of the medical art, and in a measure this was true, but not because they were priests or Levites, but because, like some physicians of our day, they had much leisure time, and nothing better to do, and might as well study medicine as do nothing. The priests were called upon to pass judgment on leprosy, and

naturally became experts in diagnosing that disease; they were specialists in leprosy, but being compelled to serve without compensation, it is doubtful if ever they declared a case of eczema any thing more formidable. Self-preservation prompted them also to the study of medicine with a view of preventing and treating those diseases which they could not avoid contracting, from being compelled to minister at all seasons of the year with naked feet.

If they had any knowledge of anatomy, they must have gained it clandestinely, because simple contact with a corpse conveyed pollution, and dissection became impossible. With the Egyptians dissection was extensively practised, and their mode of embalming their dead must have given them much anatomical knowledge. It, therefore, becomes evident that, though the Hebrew physician gained his first knowledge from the Egyptians, his school was unlike that of his progenitors.

The word "pestilence" appears often in the Bible, and yet the exact meaning of it is a matter of conjecture, for it is applied alike to leprosy, hail, grasshoppers and other inflictions running not at all parallel; still most writers agree that, when the word occurs in reference to an epidemic, it designates the glandular plague which still exists in the Orient, and when we note what perfect quarantine regulations were enforced in the case of lepers, how religiously precautionary measures were instituted to stay the progress of that blighting disease, it seems strange that the Mosaic law nowhere prescribed or commands preventive measures as to this glandular plague, by which, according to Josephus, Sennacherib's army was annihilated; though the Bible gives "an angel" credit for the destruction in a single night of these 185,000 soldiers. It seems by this that scientific research was directed in the lesser channels, and man stood too much in awe of plague and pestilence, was possibly too much of a fatalist to grapple with it. There was no lack of material to select from—that is certain; medical schools and a rival medical school; boards of health to look to the public weal and other boards of health to fight the first; medical societies to discuss subjects pertaining to their calling, and other medical organizations to denounce the first; could have been formed out of the then existing physicians, for there were great numbers of them. We read in Genesis — those of us who read the Bible — that "Joseph com-

manded his servants, the physicians, to embalm his father and the physicians embalmed Israel," and one recognized authority says on this point: "By this we are not to understand that all the physicians of Joseph took part in the operation; the command must be considered as addressed to those among them to whom this business belonged." So it would seem that attached to the household of Joseph was a large number of physicians, and why should there not be, when, according to Herodotus, "The medicine practice was divided, as follows: Each physician is for one kind of sickness and no more, and all places are crowded with physicians, for there are physicians for the eyes, physicians for the head, physicians for the teeth, for the stomach, and for all other internal diseases." And yet, there be those who claim that the specialist is the outgrowth of modern times — the fruit of the desire for perfection in one or another branch. Away back in the days of Joseph they had the specialist, and a corps of physicians was as essential to a great household at that time as is to-day a mortgage to a western farm.

Surgical aid and external applications were the main features in the practice of medicine up to a comparatively late period in biblical history, and the medicines most in use were salves, plasters, baths, and lotions; but the Talmud gives evidence of the existence, also, of medicines for internal complaints, and even of the uses to be made of mineral waters; thus, in the Talmud, it is said that man may not drink of waters which flow from a spring between two trees, because the first draught promotes digestion, the second is a laxative and the third an emetic; but, by the direction and under the supervision of a physician, this water could be taken, and we must admire this regulation when we observe the mischief wrought by the indiscriminate use of mineral waters, their use without a knowledge of their effects by the public of our day.

Every town had its regularly appointed physician and the high court — the Sanhedrin — named its own physician and its own surgeon.

That the Mosaic law encouraged the practice of medicine and also research in that direction is evinced by the law which commands him who wounds his fellow man to have him cured, and this in direct opposition to the heathen of those days who deprecated the healing of the sick and looked upon illness and

accidental injuries as providential — as a preordination which it was useless to stay. There were nabobs in the profession even then, men who were high in the social circle, for was it not Elijah who restored to life and health the son of the widow of Sarepha, and it was he who foretold the illness of King Joran and Ahasja.

The Talmud is full of remedies for all the ills man is heir to, full of preventive measures and directions for the care of the convalescent, and the compilers of that work trace to the Holy Writ much of what they lay down for the guidance of those who came after them. Thus, in forty days a plague-patient was said to be cured — if he lived so long. There seems to be good reason to believe that this supposed cessation of the disease after forty days, was because forty days constituted the philosophical month of Alchymists. Theologians always did have a fondness for "forty days." The flood, forty days — Moses' sojourn on Mount Sinai, forty days — Christ's fast, forty days.

A Talmudical remedy against the ill effects of a bite from a mad dog shows that an injury of that kind was not supposed to be followed by immediate ill consequences, and leads us to believe that the germ theory of Pasteur, Jenner and Koch was anticipated by these pre-Aescolepian writers. "For twelve consecutive months," says the Talmud, "let the bitten person drink only through a copper tube," doubtless to bring about a cure by means of the supposed chemical action of water on copper.

The optimism of the writer in taking it for granted that the patient will live twelve months is also noteworthy. That the belief in poison by the virus of the mad dog was firm, is demonstrated by the Talmudical law which commands that a mad dog be killed only by means of something which can be thrown or projected at the animal.

But here, side by side with the pioneer bacteriologist comes the humbug and the quack, who then, not having as now the press and highway fences from which to advertise his "sure cures" and lay his snares, smuggled his ideas into the works of the learned men and tells how the only possible cure for dog-bite can be effected by means of cabalistic words written on the skin of certain animals, which must have been killed under peculiar lunar conditions and a whole lot of other rubbish.

There is poetry as well as deep knowledge in the Talmudical sentence: "The eye, the mirror of our soul, characterizes as a rule our whole body and expresses our joy as well as our sorrow." And hence the same book says further on: "If a bride have beautiful eyes her health is normal," a fact which to-day may admit of doubt, but which ophthalmologists would not be unwilling to have the world subscribe to.

To illustrate the injurious effect on the eyes of a sudden change from light to darkness or from darkness to light, the Talmud cites the story of Rabbi Joseph bar Eloji, who became totally blind from living forty days in an absolutely darkened room and then coming forth and looking upon the white marble. Note again the important "forty."

While their preventive measures interest us inasmuch as they demonstrate the fact that the ancients believed the nervous system to be closely allied to the sense of sight, their remedies are not such as would entitle the discoverer to professorships at our colleges. For instance: People who suffer with diseased eyes should eat honey and all sorts of sweets, fat flesh, drink wine and wine made from the asparagus plant and garlic. Now, whether "diseased eyes" refers to refractive anomalies or to ocular pathological conditions or to a bruise from the fist of a pre-historic Hercules, we have no means of ascertaining, but there can be no doubt that ophthalmology was not their forte.

The book of Tobias relates a story which infers erroneously that a remedy for the cure of opacities of the cornea was practised. The story reads: "And in the same night I rested against the court wall and my sight was unobscured and I knew not the sparrows were in the wall and while mine eyes were open the sparrows threw heat into them and I went to the doctors but they healed me not." His son ran to his father, held him secure and stroked fish gall on his eyes — as it began to smart, Tobias rubbed his eyes and white scales dropped from his eyes and he was restored to sight.

Of the many remedies for cataract spoken of in the Talmud, none would pass muster to-day. The substitution of an artificial for the natural lens was, of course, unknown, and bats' blood, the skin of a seven-striped lizard or a seven-jointed idex were the popular remedies at that time.

I could enumerate hundreds of remedies for diseases from the holy writings, but with those already named, think I have established the fact that the physician antedates the Christian era. Before leaving the Talmud, though, let me call your attention to one edict, which shows how some habits and customs will survive centuries and defy annihilation. The Talmud admonishes us not to worry the patient with talk when making a call. Think of it ye who insist on visiting your sick friend to show your sympathy, and incidentally to retail gossip with little matters like servants, afternoon teas, babies, dresses, and plumbers thrown in for good measure; think of it — your friend's physician in asking that the door be barred against you, is simply following in the footsteps of physicians who practised before Christ was born, and whose theory centuries of investigation has not shaken.

"Madness and blindness and astonishment of heart for their transgressions" is spoken of in Deuteronomy, and it is said that David, who feigned madness before Achish, the King of Gath, alleviated the fits of madness to which Saul was subject, by his playing on the harp. In scriptural history the salutary influence of music on the diseased mind is often made mention of. As to the treatment of the insane in those days one author says: "Whatever gifts of nature or productions of art were calculated to impress the imagination, were there united to the solemnities of a splendid and imposing superstition. Games and recreations were instituted in the temples. The most voluptuous productions of the painter and the sculptor were exposed to public view. Groves and gardens surrounded these holy retreats and invited the distracted devotee to refreshing and salubrious exercise. Gaily decorated boats sometimes transported him to breathe amidst rural concerts the pure breezes of the Nile." In short, all his time was taken up by some pleasurable occupation, or rather by a system of diversified amusements, enhanced and sanctioned by superstition.

In Solomon's allegory on the mortality of man, of man's decrepitude in old age, he gives proof of his anatomical knowledge, and it is urged that the beautiful passage, "Or ever the silver cord be loosed, or the golden bowl be broken, or the pitcher be broken at the fountain, or the wheel broken at the cistern," is proof that the nervous system and the functions of the heart were known and that the circulatory system and the net-work of

blood-vessels was no secret to him who said, "There is nothing new under the sun."

Josephus tells us that Solomon possessed the power, through God, to cast out devils also, and relates a cure effected by Eliasar in the person of the Emperor of Vespasian, where, by the application of a root (the knowledge of which came from Solomon) to the nose of a madman, the patient was restored to health. This cure is said to have been effected with the aid of incantations, genuflections and other priestly hokus-pokus, which fact would lead us to believe that though versed in the science of medicine, even Solomon did resort to a little humbug now and then, and when we see some things that are done and written and said by representatives of modern medicine, we instinctively quote the wise man, "There is nothing new under the sun."

Up to this day there are nostrums and curing draughts known in Armenia and in Abyssinia as Solomonian. They have come down traditionally and are regarded with the same mixture of awe and fear as they were thousands of years ago. It was during the life-time of Solomon and by his direction that the fragmentary history of medicine consisting of the experiences, the cures, the theories of the various empirics of the many oriental nations was carefully compiled. He also procured from the temple of Æsculapius at Sidon the records of the Phœnecian physicians' researches and experience, and all this was recorded in a work known as the Book of Cures of Medical Science. (Sepher-Rephuoth.) This book after the death of Solomon descended to the Prophets and they in turn elaborated and enlarged it and so we find the Prophets on many occasions acting as physicians. The instances are many more than we would like to consider, but to show that their studies were broad, covering much medical territory and not directed in any one channel, we see the Prophet Edo curing King Jerobeau of palsy, the Prophet Achijah correctly prognosticated the death of Abija; Elisha the Tischbite resuscitates the widow's son at Zarphot and this same Prophet diagnosed intestinal disease in the case of King Joran. The history of this case, read in the light of modern science, gives good cause to believe that had the same been treated here the old King would have been operated on for appendicitis. The Prophet Isaiah used figs to cure King Chiskija of a glandular disease, but how the figs were used, in what quantity, internally or externally, and all other particulars

are omitted. The Sepher-Rephuoth was put to better use by the Prophet Elisha than by any of his contemporaries, and he is reported to have effected many cures and had confidence enough in himself to be his own physician. The Talmud goes so far as to say that until Elisha's day "no serious illness could be cured, but through this Prophet and the help of God, the most seriously ill were restored to health."

This early student of medicine is the first example of the successful practitioner, and a careful study of his characteristics, his methods and his work shows that then as now certain elements contributed to bring forth the popular doctor. In the first place he was studious and made the best possible use of the fund of wisdom bequeathed to him in the shape of the Book of Cures; he had undoubted talent and then he had luck. This latter most essential feature in the evolution of the popular physician, doubtless gave him the necessary self-reliance and he became — what would be now — the rage.

The Bible relates to some of his cures and says that the spirit of his master, Elijah, rested upon him. His practice must have been a swell one too, and it seems a pity that nothing remains by which an idea of his charges could be gleaned. The Syrian General Naaman was a patient of Elisha's; the general was afflicted with eczema and was cured, so the Good Book tells us, by bathing in the river Jordan. The Prophet, great as he was, could not resist mixing a little fortune-telling with his practice of medicine, which we see from one of his royal patients, the Syrian King Benhadad, who was ill of a dread disease. The Prophet told him that he would recover from the illness with which he was prostrated, in which prognosis he was found to be correct, but that he would shortly die from some other cause. And really, true to the prediction, the patient did recover, but shortly after died through the ill effects of a cold douche.

What a name the modern practitioner would make for himself, if he told his pneumonia patient: "You will recover from this, but shortly after your recovery, something else will kill you." What a name this man would attain if, on his first walk out, a brick from a chimney top would verify his prognostications.

When Chiskija came to rule over Israel, at the time when the people gave signs of having forgotten their God, and when the tendency was toward idolatry, he fancied that in the deference

which the people paid to the serpent of Moses (possibly an emblem adopted in imitation of that of the Greek Æsculapius) there was a certain idolatry, and not only did he suppress this sign of the healer, but the Sepher-Rephuoth was withdrawn from the reach of the physician or of the student. Here began the decline of the science of medicine, and it continued to sink lower and lower until, in the gloomy days of the Babylonian captivity, it died with poetry, with song, with art, and with all the other accomplishments which the people had acquired and which were trampled down and annihilated. With the advent of Ezra, the reformer, who endeavored, Moses-like, not only to restore the political status of the Israelites, but to revive their sense of the beautiful and bring them once more to the point on the road to higher civilization from which they had not fallen, but from which they were driven downward; with Ezra came a new era in medicine. It was he who, at the head of the Sanhedrin, made it incumbent on the members, and the members of the great synod as well, to become acquainted with all the languages in which the law and medicine were treated. But Ezra had much to contend with in the re-establishment of a love for and faith in medicine; some of the people had been won over to the ideas of the Persians, and the Romans, and the Chaldeans, with whom medicine was simply witchcraft and idolatry, while others were fatalists, who quoted the Bible to prove that a physician was only a useless meddler between God and man. "I, the Lord, am thy physician," they quoted; "I wound and I heal." They read from the Bible: "Come, and let us return unto the Lord; for He hath torn and He will heal us; He hath smitten, and He will bind us up." This fatalistic opposition prevailed till the founding of the Pythagorean school, long after the Hypocritian time, and till after the Alexandrian period, when philosophy conquered a place for medicine and went with it, hand in hand, at war with idolatry and its kindred sins.

Jesus Sirach, who many contend was a physician, was one of the champions of his time against the fatalism with which the scientist found himself confronted. He declared the physician to be the instrument of God, and it was man's duty to follow the physician's dictates and to look upon the physician as working in accord with and not against the decrees of the Lord.

Gradually the old respect for medical research was restored, slowly the fatalist made way for the scientist and the retrograde movement was checked. It would take too long to trace the second growth of the science of medicine, and it would, at best, be but telling over again an old story, as all that I have said is but an old song to most who hear it. But that a change did come, is evinced by the fact that names, great in medicine, soon appeared amongst the men of letters. We find the name of Theudas of Laodicia linked with remarkable cures and credited with great medical knowledge. Contemporaneous with him was Rabbi Chanina ben Dosa, who is described as "not only a learned rabbi but a great physician."

Not long after these men came Tobia, a native of a suburb of Jerusalem, whom history credits with making astronomical researches for and reports to the priests in Jerusalem. It was he, undoubtedly, whom Dioskurides speaks of as the "physician Tobia, of Modaim," and who wrote a work on the functions of the human brain.

I could name others by the score, but these few illustrate the point as well; and the strange feature of this era is that the greatest scholars in medicine were searchers also in the realms of astronomy — the physician and the astronomer were frequently one and the same person.

Mahomet was an epileptic. The superstitious and those who believed in the supernatural, attributed the failing to demoniacal possession, while he saw in it only a physical defect, and with a view to conquering the same, he became, wholly from selfish motives, a student of the human body, in which, however, many who looked upon him then, and whose descendants to-day, proclaim him "a Prophet of God," followed him. The dietary laws of the Mahometans, those which are not copied from the Jews, and are such as experience proved essential in Oriental countries, orignated with these early followers of the Prophet of Mecca. The Mahometans though, as well as the Jews, made no progress in the study of anatomy, but devoted much time to diseases of the alimentary canal and more to their prevention than their cure. Abstinence, temperance and moderation were religiously imposed, and while the old Jews prescribed wine on all occasions, took wine in peace and war, to drown sorrow and to celebrate joy, just as it is done to-day, the followers of Mahomet were forbidden its use en-

tirely, and during the month of Ramadan were compelled to fast daily from dawn till night.

While these restrictions appeared just and proper to the intelligent "faithful," and were followed strictly because of their evident good effects, the masses obeyed because thus only could "Azrael," the Angel of Death, be combatted. Twelve hundred and fifty years and more have elapsed since these laws were formulated, and still the Mussulman religiously adheres to the law which says he shall eat no blood, no flesh of swine, not of an animal that was not slaughtered properly, nor drink of wine nor any intoxicant. How closely the care of the body is allied with the spiritual welfare of the Mahometan is evinced by this fact: Every Moslem is told as often as he goes to worship, be it in his own home or in the Mosque, in his own land or abroad, that Islam teaches the belief in one ever-living God — that every man is his own mediator, his own saviour, his own priest, and that to find salvation he must be clean.

The Homeric poems also give proof of the early practice of medicine. The nomenclature of the parts of the body, according to Daremberg, were the same as Hippocrates used long afterward. The Homeric writers show also, that while some practitioners were skilled in healing bodily injuries, others "had the power of recognizing what was not visible to the eye, and tending what could not be healed," or in other words, the surgeon and the medicine man each practised independently one of the other.

The Greek's worship of Asclepius (or Æsculapius) as a god, shows that they placed the science of medicine on a high level, and had the proper regard for the practitioner.

The recording of the cases, which many think originated with the modern hospital, was practised at the temple of Æsculapius, where the history, the diagnosis, progress, treatment, etc., was recorded on columns, and by this means the statistics of cases was kept for the physicians of the Hippocratic school, and thus they learned to accumulate clinical experience. (An English author on early medicine is my authority for this statement).

The treatment of mental disorders by Asclepiades, as described by Aurelianus, looks modern enough to have been written yesterday. "Music, love and wine; employment, exercising the memory and fixing the attention, were his principal remedies. He recommended that bodily restraint should be avoided as much

as possible, and that none but the most dangerous should be confined by bonds. He was peculiar in advising that the insane patient should be engaged in the self-regulation of his mental powers."

Nine hundred years before Hippocrates, or the fourth century before Christ, we have the Hindoo Ayur Veda, the most ancient Hindoo sacerdotal medical writings. And this is only a resume in brief of writings on medicine and the practice of medicine of still more ancient date. In its eight sections it treats of surgery including obstetrics, general pathology and the practice of physic, psychological medicine or the theory of demoniacal possession, infantile diseases, toxicology, personal hygiene and diseases of the generative functions.

The Hindoo doctors were called Vaidya, meaning "one who understands."

The ancient Veda contained also treatises on anatomy, pathology, materia medica, therapeutics, and hygiene, and from all records now available it appears that the teachers of medicine were expounders of philosophy also — the two sciences were linked.

Subsequent to the Vaidya, the Rishis practised medicine, and it was they who traveled through the country curing disease and at the same time giving lectures on how to preserve health. The Hindoo medicine, though it has made little or no progress, is so ancient that its origin is lost in remote antiquity.

While researches show that in their peculiar manner all the great moral teachers, Moses, Christ, and Mahomet and their contemporaries, gave the subject of medicine much thought, and that each in his way through the study of the secrets of the human body and its organs, through research into mineralogy and botany strove to discover means for alleviating suffering and for arresting disease, it seems that a different train of reasoning, a different philosophy prompted each. A great ethical teacher said recently: "If Judaism be the religion of duty, Christianity the religion of love, and Mahometanism the religion of faith, Buddhism is the religion of pity." And it would appear that the medicine of these great divisions of the human family may be similarly designated.

How to lessen pain, how to diminish the suffering of the human family, how to stay death, were the problems which

Buddha tried to solve. Metaphysician though he was, he had before him always suffering humanity, and what he preached twenty-four hundred years ago is worthy the close consideration of the physician of to-day. His theory of reincarnation sprang from his pity for man. "Be good, be wise, be noble, so that when you come again you will be better, wiser and nobler. Rear your children in cleanliness of body and of mind, that they may become morally and physically clean men and women. This is better than self-mortification, better than fasting, better than praying," he said, and in his practise of medicine he had in view the coming man no less than him who consulted him. He was a man thoroughly impressed with the idea that he was destined to bring relief to the human family, and his study of the human man was made with the view to evolving from him the man-god; and what nobler aspiration can the human mind conceive?

We do not make inquiry into his methods of treatment of the patient, nor is that portion of the history of Buddha's medicine the one I wish to dwell upon, but the spirit of then and the knowledge of to-day would make a combination which the nineteenth century physician would be the better for possessing.

Let me relate an anecdote of this great teacher, with which you are doubtless familiar, but which will serve to show the dominant characteristic of the man. The story reads: There lived in the far East a charming young woman who married the man of her choice, and there was born to the happy couple a beautiful son, and happiness abundant reigned within their home. The child prospered and grew, and when it could walk and prattle, and when its bright face and childish laughter made glad the hearts of its parents, it was stricken with illness and it died. The young mother, frantic with grief, took up the lifeless form and ran with it from house to house and wailed, "Can it be true? Is my child dead; is there no one to help?" "Yes," one told her; "go to the great doctor, Buddha, who lives in the forest; he it is who cures all," and straightway she went with her burden to Buddha and cried, "Great doctor, can you not help me?" and Buddha said: "Yes, woman, I can help you; bring me but a mustard seed and your tears shall cease to flow; your grief shall pass away." And when the woman was about to hasten away to bring the mustard seed, he said: "But stay; you must procure the seed from a house where death is unknown, where grief has

never entered." And the heartsore mother wandered from house to house, but everywhere had grief, sorrow, distress preceded her, and in the contemplation of the misery of others she forgot her own loss, buried her child and wept in pity for those whose distress she had seen. And when she returned to Buddha, he said: "He must pity who would heal."

Thousands of years have passed since then, the book of knowledge has grown apace; mysticism, superstition and supernaturalisms have been eliminated from our calling; science has torn down the screens which hung between man and truth; the scalpel, the lens and the battery have laid bare the innermost secrets of the human organism; from our high plane the physician of the Holy Writ seems a ridiculously small figure, and still we feel the truth that comes to us from the far-off East of centuries gone and in admiration give echo: "He must pity who would heal."

COMMUNICATIONS.

I. Discussion on Abdominal Surgery.

1. Disputed Points in the Surgery and Pathology of Pelvic Disease.

By JOSEPH PRICE, M. D.,
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It is related of an unfortunate victim of a powder-mill explosion, lucky enough to be blown very high but to alight without general compound, comminuted fracture, that his first words were, "Where am I at?" This is about the sum and substance of some of the apologistic papers and of the occasional radical emanations on certain subjects that are just now puzzling the minds of the general profession in reference to what ought and what ought not to be done in the cases of pelvic disease coming under their notice.

Prof. Palaver Papaver, the great Oriental authority, astonishes the world by radically curing incurable cases by waiting till they are past operation and letting them die themselves. By this method two objects are accomplished: the diagnosis of ultimate death is confirmed, and Nature has her way. Nature, to many minds, is the sovereign remedy to be trusted in case of doubt; by so doing credit is got gratis in the event of recovery, and blame is escaped by philosophic resignation to mysterious methods of "Nature." This is in effect the advocacy of the everlasting rest treatment. The advantages of this peculiar method are so patent as to need no exposition. Prof. Dubioso Dogmaticus classifies his treatment according to the temporal conditions of his patient: Surgery where pay is doubtful, delay [rest] where collections are certain; surgery to the poor who must work, rest to the rich who can pay. This is logical. The benefits are equally distributed. On the one side the patient receives them,

on the other the doctor. Professionally we must not be selfish. As to facts, there are enough at the odds to give us an argument for everything we desire to try. This is an argument furnished gratis for my controverters. Prof. Ingenuus Subrisus [lately appointed] treats every case two ways, each case a different way, and is doubtful all the time. This is a combination of the homeopathico-allopathico miscegenation, allied to the propagation of certain defamed and unfortunate creatures to whom ancestry is a reproach, pedigree impossibility. Prof. Audax Gabulandi represents the radical school of rising surgery, which has for its aim the universe; object, to make extremes meet. Motto: Either do not operate at all, or if operation is necessary, or, better, decided upon, remove everything. This radical advice is a necessary accompaniment of any uncertainty as to where the exact seat of the disease is located. But if all is removed, within limits, we are sure of attacking and evacuating the offending part with corresponding success; or in case of failure there will be so much less to seek at the next interview on the operating table.

Gentlemen, you will pardon the apparent levity with which I have introduced a serious subject. Nowhere else ought the signs to read more clearly than in the domain of diseases of the pelvic organs. Several decades have now elapsed during which every phase, every condition, every cause, and every symptom of this many-armed Briarean monster has been discussed, often, I fear, by those little fitted to consider it. Surgery, over our many-stated country, is like its politics and political privileges — democratic. Each man speaks as he will, with none to stop or question his right. The evil of our profession is the too prevalent medical journal. These are too often established to give a ready advertising medium to the patent nostrum or the enterprising manufacturer, and must be filled at any cost, at any risk, with anything that takes up space. This gives a ready outlook for all kinds of talent — for the man who wants to write himself into notoriety, and for the lucky dabbler who mistakes coincidences for causes and fluently misleads by his unique experience. As the French say, "All cats are black in the dark," and so all names are alike on paper, and we have often only uncertain means to determine which opinion is founded on fact, which is imagination, which is pure fiction. In my discussion of the subject I have attempted

to elucidate, I shall endeavor, as we pass, to mark some of the leading points that indicate steadfast, abiding surgery and theory, in which we may safely put our confidence.

First, we have the history of doubt and contradiction of conditions ever surgical in the so-called pelvic cellulitis. The classic volume of Bernutz and Goupil, late to be recognized, tardy to be accepted, threw such a flood of light on this matter that once for all we should have considered the matter settled. Their facts are not the exposition of a mere theory. Their facts proved a condition concerning whose reality it is criminal to theorize. Post-mortem after post-mortem discovered the existence of pelvic lesions, treated after the old-time orthodoxy of poultices and painting with iodine, with a ghastly uniformity in the results. Yet in the face of all of this, and of all the evidences lately accrued, we have it gravely stated, by men who ought to know better, that pus in the pelvis or in the tubes is rarely dangerous *per se*.

On the top of this we have it gravely stated (but, be it remembered, the augurs were wont to smile at the oracles) that even if a tube be broken down by puriform degeneration, it may still be worth preserving as an agent in the production of pregnancy. Mark you, cheesy with pus, it may translate the ovule through puriform deposit and so render impregnation possible. The authors of such nonsense forget, in their zeal to be considered conservative, that such tubes are, by universal consensus of the best and most accurate observers, made responsible for the majority of cases of ectopic gestation, and so, if they are conducive of pregnancy, it is of the most dangerous variety. Then, again, it is easier to suppose that in cases where diagnosis is made of tubal and ovarian abscess, bilateral, followed afterward by conception and delivery at full term, an error has been made and that the supposed tubal disease was in reality something else. It is often even under the eye and finger difficult to tell what the nature of a diseased part is, and the results in cases claimed as above controvert the diagnosis, no matter by whom made. The argument that tubal and ovarian abscess are not in themselves dangerous is simply special pleading. It has been proven clinically, and on the operating table, and in the post-mortem room, that many of the cases of puerperal peritonitis are due to one-sided ovarian or tubal abscess ruptured during delivery. Now, if this is at all conceded,

and it cannot be denied, it establishes once for all that the condition that is not dangerous is most fatal in the very circumstances that these surgical sleight-of-hand men claim and urge for its non-removal. What we want to remember, in reading such special pleading and oblique reasoning, is that two diametrically opposite statements cannot be true, and that one of the two must be ill-considered, ill-advised or untrue, and that whichever is true labels all other previous statements as injudicious expression. At this point we are met with the pseudo-experience of many who would pose as authority on the subject of this class of troubles. Immediately at the beginning of their work they commonly spoke of this or that fact observed for a long time, or this or that expedient practised for a number of years, at a period when their cases were at a minimum and their observation of negative value. These are the men in whom change of opinion is to be expected. At the start they are either radical conservatives or rancorous radicals, and at the end they balance accounts according to their own experiences—usually bad—condemn all that others do, condone their own mischievous results by their honesty in confessing it, and take the ground of irresponsible neutrality where they can shoot either way. With these, conservatism and delay are synonymous. Their counsel is good so far that it may hinder irresponsible and unfit operators from entering where they have no right to go. Their advice is bad, seeing that it will unsettle the minds and convictions of many physicians who otherwise would have their patients, under these conditions, obtain the benefits of surgery.

The argument against the prompt and thorough removal of diseased parts, so readily admitted as to other regions, is again latterly disputed on account of the hidden nature of the disease and on account of the presumed easier alternatives, such as vaginal puncture and drainage. We even had aspiration suggested in tubal and ovarian abscess by bringing these against the abdominal wall and puncturing, or through the vaginal vault by the same method. This is akin to fixation of the uterus by thrusting a needle through the abdominal parities, without incision, or such rash surgery as lithotomy and allowing the patient to walk home from the office. When operators, presuming to be careful and conservative, have these and like procedures on the conservative list, what are the grounds for their authority? If I were to say

to any one of you: "I would not hesitate to tie the carotid by boldly thrusting the needle through skin, superficial and deep fascia," what would be your verdict? And yet procedures just as rash, ill-advised and unsurgical are hailed with approbation and considered progressive. Now, the truth is that at their best such measures are only half-way weakened attempts at surgery to avoid seeing the dangers of operation and failing in the handling of complications.

The complications of pelvic surgery are its trying elements, and no man of small skill is able to deal with them intelligently or successfully. Puncture and drainage, even in the so-called cellular tissue abscess, is in no wise certain of success, seeing that such abscesses, when they have been found, are said to have been multilocular. Moreover, in ordinary cysts in the external tissues, if the sac is not removed, it is the usual history that they refill. Abscesses vaginally treated have no different history, and in the great majority of cases cannot be thoroughly evacuated, as I can demonstrate to you. I have so often repeated this that I only mention it now on account of some misleading claims lately made as to the cure of these conditions without operation — claims that I do not believe for a moment can be substantiated. Many of the older operators, when first convinced of the value of real surgery in these cases, heralded the innovation as incalculable in its benefits. Where now is the value of their opinion, if they go back to their old practice? Surely they condemned this with a knowledge of its insufficiency, so by what logic do they now proclaim it a placebo equivalent to a cure? Such contrariety of opinion from the same source proclaims the fact, first, that they were dissatisfied as to their results by simple treatment and went over to the new and logical procedure; and now, having failed in this, rather than acknowledge their shortcoming, they condemn the methods which they are too unskillful to apply or too unscientific to determine their useful application within the limitations of surgical principles. It must be remembered that real surgery does not propose necessarily to establish all physiological functions. Amputation will leave a man lame, but it may save his life; so, abdominal surgery often stops the progress of disease, while the patient is nevertheless slow in regaining the health often lost more by delay than disease. Upon the top of much of the so-called conservatism comes much ultra endeavor after

originality in the shape of unjustifiably extensive operation. No one can condemn any operation within the limits of dangerous disease, but the advocacy of the extirpation of the entire system of related organs for mere suspicion of some discomfort is the acme of rashness.

What, then, is the status of pelvic surgery and pathology? First, the actuality of pelvic disease, as represented by the most careful and conscientious surgeons of the day, is substantiated by the post-mortem table and the microscopic pathologist. Its fundamental conditions and effects are of a kin with like conditions elsewhere, the location in the pelvis alone making them peculiar. The range of pathological implication in the pelvis is wide and far-reaching in its possibilities for evil. What appendicitis, suppurative and fulminative, is in general surgery, ovarian abscess and tubal pus retention are in gynecology. Pus in the pelvis as an acute condition is recognized as a serious accident. As a chronic condition its results, while slower, are none the less fatal finally. Lung, kidney and liver implication are natural sequelæ of the disease. The pathological importance of pus in producing disintegrating changes throughout the entire organism is too well understood by you all to render it necessary to insist on it here.

As to the original cause of diseased tubes and ovaries, we are prepared to argue and sustain the position that gonorrhœa in the male is an important factor. Dirty midwifery, dirty midwives, abortion with retained placental débris, have much to answer for. "Catching cold" it is fair to put under the mythical causes in most instances, unless coming on the top of antecedent inflammation. So, with such an etiology, it is easy to understand that ovarian and tubal disease is not a myth; nor is it difficult to grasp the fact that if a gonorrhœal orchitis will destroy the physiological function of a testicle, it will also past redemption work injury to the Fallopian tube. Gonorrhœal conjunctivitis is a terror to every obstetrician, but to a certain select few it is a myth and ogre in gynecology, to be used only occasionally as a great scare. Patchwork reasoning will not do. A pathology for one organ having a like cause as in another must have the same results. But whatever the origin of the disease, when suppuration has gone on the changes are more or less identical and the results must be the same. I will make it plain, if you are in doubt in the discussion, that so-called palliation is

often exacerbation of the disease; though to prove this it is not necessary to look further than the latest journals for cases of so-called recovery from pelvic abscess relieved by puncture and the like, only to relapse and finally succumb. If, then, the pathology of these diseases is real and established, ought not their surgical treatment also to be a matter of more or less general consensus from a scientific standpoint? A physiological function, with all its data established, as are the points of this pathology, would have but little captious criticism. Unfortunately here we are brought into an argument as to whether the loss of physiological organization carries with it a loss of physiological function. Disregarding all analogical reasoning, the position is strangely held that the tubes in this respect are an exception to all other organs. The question comes, are we, as rational men, required to believe this? And I take it the answer is no. I reason that if a man does not believe in his own surgery we need not be expected to take for granted a pathology, new, indeed, but modified to justify his own scepticism.

The disorganization and destruction of the tubes and ovaries, by inflammation and adhesions, is really a small part of the so-called pelvic disease. The destruction extends apace and is limited only by varying conditions of the patient. The implication of bowel, omentum, bladder, and connective tissue often is a matter of the gravest importance and leads often to the most serious consequences. Intestinal adhesions give rise to a vast amount of pain; indeed, most of the pain of pelvic disease may be said to come from drag and draw of adhesions. Outside of simple binding down of parts naturally free and unrestricted, the calibre of the gut may be brought down to *nil* and complete obstruction take place. Hence it is seen that the argument against cure of such cases outside of real surgery is fallacious and misleading, and that in the very worst cases such cure is impossible in the pelvic, just as it is acknowledged to be so in other regions of the body. For any man to say that his desperate cases recover without operation is for him to confess that his operation has been unjustifiable and his interference one of ignorance.

If, now, there is a real pelvic pathology — and I shall take for granted that no argument is needed to prove this — it stands out that in the pelvis, as in other portions of the body, there is a sur-

gery for suppuration and adhesion, for gangrene and inflammation. This surgery calls for removal of hopelessly diseased parts, or of parts likely to interfere with the physiological function of more important parts. On this line nothing more need be said.

A word in conclusion as to the after-effects of removal of tubes and ovaries. It is a question not to be decided upon the testimony of a single operator, but only by a consensus of men of experience and operators. I believe that these will, on the whole, decide that in surgically ill cases the benefits are real and lasting, rescuing a woman oftentimes from a condition that is only living death. I lay it down that in the worst cases the benefits will be the most apparent, and that oftenest we will be disappointed where we are tempted and dragged into operating where the lesions barely justify such interference. As to insanity produced by operation, I have no hesitation in saying that in many cases it would have come on later at the event of the real climacteric.

All in all, there is a deal of misconception as to the real place of pelvic surgery. But much error will cease when we remember that in this, as in other surgery, common sense must guide us, a real surgical drill and experience, an elimination of pretense, the feeling that anybody may open the abdomen while only a specialist may remove a cataract. Judged by such standards there will be less quibble, better results, and more advance.

II. Discussion on Abdominal Surgery.

2. Influences Affecting the Results in Abdominal Operations.

By J. F. W. ROSS, M. D.
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It is not my intention to refer to the work or writings of others in connection with this subject. I have made a critical examination of the deaths occurring after abdominal operations, in my own practice, and give you the outcome of a close observation of such cases. The observations have been as accurate as I could make them. It has been my custom to preserve an accurate record of each case.

When a fatality occurs, an operator should at once ask himself the question: Could this termination have been prevented? The influences affecting the results of abdominal operations may be discussed under four heads:

Firstly, the influences inherent in the patient.

Secondly, the influences closely connected with the character of the operation.

Thirdly, the influences due to the atmosphere and surroundings of the place in which the operation is performed.

Fourthly, the influences brought to bear upon the patient by the details of the after treatment.

Firstly, the influence inherent to the patient.—I heard a surgeon say, recently, and I was glad to hear it, "that no matter what aseptic or antiseptic precautions are used in certain cases, in clean surgical wounds, pus is occasionally found." I have contended for this for some time. No doubt, pus occurring in a wound may be due to carelessness on the part of the operator or to some impure condition of the air at the time of the operation, but it may also be due to some condition inherent in the patient. Were surgeons more accurate in expressing some of their opinions we would learn that they have pus, it may be in very small quantity, in their wounds oftener than they believe. A busy surgeon has scarcely time to watch each wound for two or three weeks after it is made, and a stitch-hole abscess may develop even at such a distant date.

Conditions of the patient affecting the result of abdominal operations or of any operation, are scrofula, anæmia, malarial poisoning, poisoning from bad drainage and impure drinking water, and, perhaps, a condition produced from eating improper or insufficient food. In such cases the system is unable to provide the proper barrier against infection, and, as a consequence, the wound does not heal kindly and the patient does not do well from the very first.

I have watched two cases, side by side, in the same institution, with the same disease, the same operation having been performed for the relief of that disease, and the one patient has died and the other patient has recovered. These were two cases of pus tubes with rupture of the tubes and escape of pus into the peritoneal cavity at the time of the operation in each case. Each was washed

out; in each a drainage tube was used. In the one case adhesions formed around the drainage tube with rapidity and remained organized; in the other, either no adhesions were formed or they were so slight that they rapidly broke down again. The leucocytes were evidently in an unhealthy condition in the one case and were unable to keep the poisonous material out of the system; in the other case they were vigorous and able to do their work. In each case a new drainage tube and new suction syringe was used, after having been thoroughly sterilized before the operation. Iodoform gauze dressing was used in each case. The adhesions were not more severe in one case than in the other. The after-drainage from the peritoneal cavity was as free in the one as in the other, and yet the one patient died from rapidly spreading purulent peritonitis and the other recovered.

When we ask ourselves the question, What constitutes the difference in these cases? Why does one die and the other recover? we must conclude that the difference is due to some peculiar condition of the patient. If it were not for this peculiar condition every case of septic peritonitis would die. In the days when operations were not performed for the relief of patients suffering from acute general peritonitis a large percentage of the patients died, but a few of them recovered. Those that recovered, frequently did so without any pus formation, or at any rate without any external evidence of pus formation. Outside influences in these cases can, therefore, be left out in the consideration of the different results, because no operation was performed in either the fatal or non-fatal cases.

Since we have been operating on these cases we must all have been astonished at the differences to be observed on the operating table. In some cases the visceral and parietal peritoneum appears to have become rapidly thickened, as if from a large influx of leucocytes, a defending army guarding the system from the invasion of the poisonous foe. In the most rapidly fatal cases that I have seen this thickening was entirely absent and portions of the intestines looked so gangrenous that I was afraid they would rupture during the necessary manipulations. In the cases in which operation has been deferred and in which pus has been present in the peritoneal cavity in contact with the intestines for two or three weeks this thickening is particularly well marked.

I remember well the case of a little girl who had a rupture of a suppurating mesenteric gland three weeks before I saw her. She had been ill with peritonitis during the interval and the abdomen was enormously distended with pus and gas. After puncture with a knife the pus and gas were forced out like soda water, under pressure, from a siphon. The lymph follicles, or whatever these little elevations may be, were found studded over the peritoneal surface like the little elevated spots to be seen on the rind of the cucumber. In this child the system had been protected from this enormous quantity of pus free in the peritoneal cavity for three weeks and the post-mortem examination showed that she would have recovered after the operation had it not been that the small intestine had become gangrenous in one spot near where the suppurating gland in the mesentery burst, and all milk ingested passed out through the drainage tube in the cul-de-sac of Douglas. She lived for two weeks and died of starvation. The intestines were subsequently found firmly agglutinated into a solid mass, the peritoneal cavity was almost obliterated and the omentum could scarcely be recognized.

Two medical students may enter the dissecting-room together, each may cut his finger on the same subject in a similar manner, the one may become suddenly infected and lose his life from acute septicæmia, the other may observe nothing but a little reddening around the incision and the point of inoculation. There must be a protecting influence in the one case that is not present in the other. We are well aware that some people are liable to inflame after a scratch or a bruise, while others may have scratches and bruises that will heal without the slightest trouble. We are well aware that the same person may, at certain periods of ill health, be liable to inflame after a bruise or cut while, during periods of good health, he will heal readily. Children with a tubercular or syphilitic taint are prone to periosteal and bone inflammation and joint diseases after slight injury, whereas, a healthy boy can be knocked and battered about without any ill consequences resulting. There is no open wound in these cases through which germs can be introduced, and hence the difference must be due to some inherent individual influence.

The cases that are most frequently fatal after the performance of an abdominal operation are those in which the septic element is prominent, and has been prominent for some time previous to

operation. I fear such cases, and sometimes think that it is almost useless to operate upon them. If the pus tubes be small and the septic infection be great the patient is very liable to die ; and pus tubes ten times the size, with extravasation of the pus into the abdominal cavity at the time of the operation, may be removed with much greater safety from a patient whose circulation has been, to a great extent, shut off or freed from septic elements.

The presence of the tendency to bleed may seriously affect the result of an abdominal operation. This is a tendency undoubtedly inherent in the patient, and perhaps transmitted from parent to offspring. I operated on one such and enucleated two degenerated ovaries and diseased tubes. Before operation, the information that she came of a family of bleeders was withheld from me, and it was only at a subsequent date that I learned that both her mother and her sister had bled to death. The bleeding continued after the separation of adhesions in the form of an oozing, and this oozing kept up through the drainage tube for nearly a week, in spite of the use of a solution of perchloride of iron injected about the third day through the drainage tube. I concluded that she must die, and told her friends so. On several occasions she seemed to be approaching her end, but rallied again, and finally recovered.

Organic disease in other viscera may seriously affect the result of an abdominal operation. I have performed total hysterrectomy for a large fibroid in a girl suffering from both aortic and mitral valve disease. The pulse remained irregular and quickened for forty-eight hours, and this was accompanied by great shortness of breath. After three days the patient progressed in the ordinary way, and made a good recovery. I have operated on several patients suffering from renal trouble, and always fear these operations more than I do those performed on patients suffering from heart disease. If the renal disease is sufficient to produce an œdema of the tissues, the wound does not heal as kindly as it otherwise would do. The pulse seems to become more rapid, and remain high for a longer period. In one case I noticed a peculiar wandering of the mind, without any rise of temperature, that passed off after two or three weeks' time. There was albumen in the urine, but no casts were discovered. Whether the wandering of the mind had any connection with the presence of albumen or not, I am unable to say. The pulse remained at about 110 to 115 during this period.

The mental condition of the patient may affect the result of an abdominal operation. In one of my recent cases I called to see the patient the night before the operation. I had seen her but once, and was now amazed at her appearance. I made the remark to the nurse that she looked blue with fear, as if she were terribly frightened at the prospect of the operation the next morning. She was given a sedative, and on the morning of the operation appeared much calmer. A simple ovarian tumor was removed, and during the night of the day on which the operation was performed, she became wild and almost uncontrollable. The temperature remained normal, and the pulse was but slightly elevated. Under the influence of bromide of potassium, we were able to control her for several days, but she appeared abnormally nervous. The wound healed by first intention; the stitches were taken out; there was no pus to be seen anywhere, the abdomen was flat; pulse from 60 to 80 until the eleventh day. On the tenth day the temperature, for the first time, became elevated. The patient became wildly maniacal, and required restraint. The mania gradually deepened in three days into a coma; the coma continued accompanied by occasional spells of Cheyne-Stokes respiration for a period of four days, and death took place on the eighteenth day after operation. I learned that her brother was burned some years ago, and that when the burn had healed, he became maniacal and died insane. Nowadays the craze is to call everything that is not understood "septic." This case of mania would be put down as a case of septic mania, but I never saw an abdomen look better or a wound heal with greater readiness. I have also had two patients die from mania following hysterrectomy, one on the twelfth day and the other on the eighteenth day. I have always considered these cases of mania following hysterrectomy as of septic origin.

Secondly, the influences closely connected with the character of the operation.

My operative work is done in three different hospitals and in private houses. I always carry a large satchel containing instrument and sponges prepared under my own supervision. No sponge, drainage tube, suction syringe, silk, or rubber dam is ever used a second time. Thus, the influences surrounding an operation, as far as the instrument, sponges and operator are concerned, are the same in each case. A simple ovariotomy done in one

place can thus be compared with a simple ovariotomy done in another. The influence of the character of the operation on the result is so great that statistics of abdominal operations should be classified somewhat as follows:

Pyosalpinx.....	With rupture of the tube and escape of pus into the abdomen. Without rupture of the tube or escape of pus into the abdomen.
Ovarian cyst....	Simple. Suppurating. Strangulated. Broad ligament cysts requiring enucleation.
Hysterrectomy and Myomectomy.	Total extirpation. Extra-peritoneal with clamp. Ventral fixation.
Hysterrectomy..	For suppurating fibroids. For fibroids in broad ligament. For fibroids accompanied by peritonitis with rupture of tube.
Oöphorectomy..	For fibroids. For dysmenorrhœa. For abscess of the ovary with escape of pus into the abdomen. For abscess of the ovary without escape of pus into the abdomen.
Peritonitis.....	Puerperal. Gonorrhœal. Tubercular. Appendiceal. From ruptured pus sac.
Appendicitis....	Without peritonitis (relapsing). Without pus formation. With pus formation.

Were such a classification closely followed we would be able to learn more regarding the danger of infection of the peritoneum from within. This danger is, undoubtedly, a very great one. I believe that one might open the abdomens of one hundred people in a healthy condition, yes, perhaps of five hundred people with proper precautions, such as those now generally adopted, without having a single fatal result. The removal of simple ovarian tumors, when the patient is in a good condition of health, should be attended with almost no mortality. But, when we come to speak of operations for suppurating ovarian cysts, for suppurating fallo-

pian tubes, for suppurating fibroid tumors, we then have a septic element to deal with, and the mortality must be, as a consequence, enormously increased, in spite of all the washing out of the peritoneum, all the packing with iodoform gauze, all the drainage that can be instituted, and all the antiseptics that have ever been brought into use.

We often hear the relative merits of the drainage tube and the suction syringe discussed. Some of these discussions are carried on by those who theorize, but who do not bring personal experience to bear. I operate on all cases in which I think the patients have any chance of recovery. On three occasions operations have been done on patients when professional brethren standing by have stated that, in their opinion, there was not the slightest chance of recovery. One of these had a pulse of 160, and acute, general peritonitis from the rupture of a pus tube. Operation was sanctioned by my confrères, though they felt the case was hopeless. The second was one of perforation of the intestines, and escape of the last meal into the abdominal cavity with collapse and acute, general peritonitis. The perforation could not be found, and yet the simple washing out of the food from the peritoneal cavity saved the patient's life. After several months a second perforation took place in the jejunum, I presume at the old spot, and he entered the hospital but died almost as soon as he arrived. The third case was one of rupture of a pus sac into the peritoneum, with the patient apparently beyond the hope of recovery, at the time of operation. She, also, made an excellent recovery. Let us put these cases on the one side of the balance, and, on the other, a large number of cases of purulent peritonitis that fail to recover in spite of operation, cases in which multiple abscesses have been drained, pus pockets thoroughly cleansed, and still all without avail. Unfortunately, we find in the literature on this subject that has been collected within the last few years, cases recorded, in well-rounded sentences, that give the novice the idea that all he has to do in a given case of purulent peritonitis is to open the abdomen and to wash it out, and that the patient will be up and running around in three or four weeks.

The mortality of cases of purulent general peritonitis is enormous either with or without operation. Without operation, about one hundred per cent will die; with operation, a few may be saved. Professional men are not always fair in their criticisms

of their professional brethren. The man who operates on cases of purulent peritonitis, endeavoring to do his duty and to give the patient one last chance, will necessarily have a much higher death rate than the surgeon who, with a knowing smile, withholds his hand and operates on no case that is not likely to recover. Thus, a contrast of his work with that of his neighbor may redound to his credit. He is careful to publish a list of his successful operations so that those who are not in the "inner ring" may be able to judge of his wonderful ability.

Each time that a surgeon uses a knife and the patient dies, people say that the patient died as the result of the surgical operation and this does the surgeon harm. Take for instance, a case of appendicitis with disease in the neighborhood of the appendix, secondary rupture of the abscess sac into the abdominal cavity, a purulent peritonitis and the patient in a septic condition. In such a case in spite of all the antiseptic precautions we can take, in spite of the fact that the patient may be surrounded by the best of surroundings and be attended by the best of nurses, he will die whether we leave him alone or whether we operate on him. Without operation there is no hope of recovery, and with operation the hope of recovery is remote.

Thirdly, the influences due to the atmosphere and surroundings of the place in which the operation is done.

For a time the germs in the air received a large amount of attention and the carbolic spray was used. The carbolic spray was an acknowledgment of the presence of foulness in the atmosphere and was used to neutralize this condition just as the ignorant may imagine that by dipping septic hands into a solution of carbolic acid or bi-chloride of mercury, they are destroying the filth that is present without first attempting to eliminate the filth by some other method, and without reasoning that if the filth is eliminated no antiseptic is required. Of course, if soap eliminates filth and destroys the germs it is an antiseptic.

After the spray in the atmosphere came the other extreme of relying too much on antiseptic washes for the hands and for the patient. There can be no doubt that thorough cleanliness is essential, but the man who performs abdominal operations and relies implicitly on antiseptic dressings to the wound and antiseptic lotions to the hands, and neglects the condition of the

atmosphere in which the peritoneal cavity is opened, will fail to secure as good results as he could obtain if more attention was paid to this important factor.

In my opinion we have been taught to pin too much faith to antiseptics. Not that we should cease using them but that we should learn to look further and pay greater attention to other matters than we do. To endeavor to eliminate the influences of atmospheric contamination of which I speak, it is necessary that one should conduct his operations, or experiments if you like to call them such, with every antiseptic and aseptic precaution. I have found that when the peritoneum has been opened in a contaminated atmosphere and closed again, the antiseptics prevent wound contamination and assist the wound to heal kindly, but the poison introduced into the peritoneum at the time of the operation is sufficient to produce irritation with a little more distension than one cares to see, with a little higher temperature and pulse than one cares to see, and, though the patient recovers, the progress of recovery is not as free from incident as it ought to be. When such peritoneal irritation is found in two or three simple cases performed in the same operating room, one must conclude that if every precaution is taken, on the part of the nurse, and the patients are apparently in equally good health, the difference in the result must depend upon the state of the atmosphere of the operating room at the time of the operation. If the plumbing be good and the other patients undergoing treatment for minor troubles are in good health, the different results produced by the atmosphere must be due to some other poison than that of sewer gas. What these poisons are it is difficult to say. I am satisfied, however, from my own observations that the entrance of a septic case into a building in which abdominal operations are being done on the same floor or the floor above, have an influence for evil on the results. All septic cases, such as neglected cases of appendicitis with burrowing abscesses, cases of neglected and septically infected lumbar abscess, cases of infection following labor and miscarriage, all emit a peculiar odor, and while the nostril is able to detect the odor, a wound opened in the neighborhood is able to detect a poison. The simple removal of such a patient from the institution, by death or otherwise, is not sufficient to prevent the subsequent infection of wounds. I am speaking now of institutions in which no nurse attending to a laparotomy

is allowed to go near such a septic pus case as any of those mentioned above, so that this contamination spoken of cannot be carried by the hands or the clothing of the nurse but must be carried by the currents of air. We must admit that while the nurses are trained to take every precaution the results under one nurse will not be as good as they will be under another. But omissions on the nurse's part can be, to a great extent, detected.

Whenever a case dies after the removal of a simple ovarian tumor or the performance of some simple operation on the abdomen, operations in which there can be no infection from within owing to the nature of the disease for which the operation is performed, whenever such a patient dies from peritonitis I consider that it is of the greatest importance to criticise carefully the surroundings of the patient at the time of the operation. We must exclude the possible infection from fingers and sponges, because I am supposing that the operators are ones who take every precaution both as to their own clothing, as to their instruments and sponges and their avoidance of infectious diseases. It seems to me that the peritoneum that has been inflamed has become accustomed to the process of phagocytosis and is not as liable to be poisoned from either external or internal influences as the peritoneum that has never been inflamed and from which perhaps we are endeavoring to remove say, a simple ovarian tumor. To this fact I attribute our success in many operations for the removal of pus tubes in which an enormous surface is bared, in which pus bathes this bared surface without leading to any septic infection. I believe a healthy peritoneum is more susceptible to a slight poison in the air than an unhealthy peritoneum.

It would be well if we could compare the results of abdominal operations in different cities during an epidemic of cholera or la grippe, measles or small-pox, or even during an epidemic of typhoid fever due to the impure quality of the water generally consumed. Patients debilitated from a recent attack of influenza or la grippe are certainly not in as good a condition for a successful abdominal operation as those patients who have not had such an attack. The infection from cases of influenza spreading itself mysteriously in the air through the medium of the breath must be very potent. The operator who has just passed through an attack of measles will scarcely dream of doing an abdominal operation until satisfied that he is thoroughly rid of the infectious poison,

but many operators undoubtedly continue to operate while suffering from contagious influenza. The question may be asked, Does this affect their results?

The other day I had just completed a hysterrectomy, and after leaving the hospital, met a gentleman who, three days before, was confined to bed with la grippe. He said he was sorry that he had not heard of the operation or he would have been present. I told him I was very glad that he had not heard of it because I would as soon have asked a person recovering from scarlet fever or measles as to have asked him to be present.

Then, again, it would be well if we could compare the results of abdominal operations during the period at which sickness among the population is rife, a period at which, in our northern climate, vegetable matter is decomposing and foul vapors are kept in by clouds and fog.

I have thought that the cases operated on in isolated houses among the middle classes, when the children have been sent away and the house has been thoroughly put in order before the operation, and when a trained nurse has been employed, have done better than any others. Each house thus becomes a little private hospital with one bed.

On windy days we often see the dust, composed of horse manure and filth, swept along in clouds; and with certain kinds of pavement the housekeepers complain that they are unable to live with the windows open. Whether such dust can be dealt with by a healthy peritoneum or not it is difficult to decide, but one would not think it wise to dust dry horse manure over a healthy peritoneum.

Some months ago in a surgical ward of our general hospital, a child, admitted with a broken leg, became affected with scarlet fever. For some time subsequent to this the wounds in the ward did badly; no erysipelas presented itself, as it would have done in the pre-antiseptic and aseptic days and days when such a thing as ventilation was scarcely thought of. As a consequence of this outbreak it was necessary to clear out the ward, to fumigate it with live steam and sulphur, re-paint and re-whitewash it. Since that time the wounds have shown no abnormal amount of irritation. I had a run of cases in which all did well; among them were a number of bad pus tube operations and a Porro's operation. These were done in the open theatre as a matter of neces-

sity, owing to repairs to the pavilion, and each case was put in an isolated ward, especially prepared, if a drainage tube was left in. We then moved back into the pavilion, and my cases and those of my confrères did well. After a time a patient was admitted to this pavilion, suffering with an encysted peritoneal abscess following labor. She was placed in the ward down-stairs, very unwisely, to await an abdominal operation. Her condition was so desperate that we felt it would be a hardship to remove her, but, in order to take all precautions possible, opened the abscess in a small room adjoining the ward and not in the ordinary operating theatre. The operating theatre is removed from both wards, and all cases after abdominal operations are put on the floor above. The abscess was opened with antiseptic precautions and was washed out; patient was very septic. In the next few cases operated on after this time the wounds looked abnormally red and showed evidence of some septic infection. This happened, not only with my own cases, but with those of my confrères. The patients were now all turned out of the lower ward, and it was thoroughly aired but not fumigated. This did not seem to be sufficient and we, therefore, moved all the patients out; had all the ventilating shafts cleaned of dust, floors re-waxed, walls re-whitewashed, and the bedding fumigated and disinfected. Since that time we have had no trouble; the wounds have been healing without the slightest sign of irritation. I am speaking, of course, of simple cases likely to be infected from without at the time of the operation.

I was subsequently appointed to do the abdominal work in a hospital established in an old building, a hospital intended to admit all classes of cases, including typhoid fever, erysipelas and cases of suppuration. I determined to perform a few operations and if the results were not satisfactory, to perform no more until a proper isolation surgical ward could be provided. The following cases were done with the results given:

Pyosalpinx	4 cases, 1 recovery, 3 deaths.
Ovarian cyst, simple	1 case, 1 recovery.
Appendicitis	2 cases, 2 recovery.
Peritonitis, acute, general	1 case, 1 recovery.
Exploratory incision for malignant disease of the mesentery	1 case, 1 recovery.
Exploratory incision for papilloma of both ovaries with ascites	1 case, 1 death.

The first operation performed was successful, though extremely difficult. From the beginning, however, the wound did not suit me. The operation was done on the top story in the operating room after fumigation over night and the adoption of all antiseptic precautions. With a different assistant I then performed two operations in one morning, one an exploratory operation for cancer of the ovaries and one exploratory operation for cancer of the mesentery. The peritoneum was not washed out in the former case after the removal of the ascitic fluid and the patient died of purulent peritonitis. The other case recovered but did not make as ready a recovery as I would have liked. With a different assistant I then did two more operations in the same operating room, with the same precautions. The first was a case of cyst of the ovary and she made a good, though not as easy a recovery as I generally see in such simple cases. The second operation was done for the removal of two pus tubes and was very difficult to perform. The abdominal cavity was washed out and drained; the patient died after several weeks from intraperitoneal suppuration. The abdomen was reopened and a large collection of pus found in the cul-de-sac of Douglas and washed out, but the sepsis seemed to have been too great for the patient. At the post-mortem examination another collection of pus was found further up in the abdomen. I then decided to do no more operations in the room up-stairs, and was given a private ward on the first floor. Here I operated on a case of acute peritonitis; the patient recovered but the wound looked angry from the first. The next case was one of double pus tube done in the same room with every antiseptic precaution. The assistants had a bath on the morning of the operation and the room was thoroughly fumigated; all the water used had been boiled; the instruments and sponges as usual were my own; the abdomen was thoroughly disinfected before the operation and ward-tenders were not allowed to enter the room. The case was septic from the first, though, of course, pus flooded the abdomen at the operation, and she died of septic peritonitis. The next case was one of appendicitis, opened in the operating room up-stairs; he recovered. The next was one of double acute gonorrheal salpingitis, the tube ends were disturbed from their adhesions and no doubt their contents were emptied into the abdomen; the abdominal cavity was

washed out and drained. Patient became distended before night and died from acute peritonitis inside of forty-eight hours.

These cases were severe, but their course did not correspond to cases equally as severe, done in two other hospitals, with special arrangements for the performance of abdominal operations. In ten cases we thus had four deaths. In one of the other hospitals I had operated on, within a short period, nineteen cases of pus tubes, with seventeen recoveries and two deaths; in the other hospital, on ten cases of pus tubes, with seven recoveries and three deaths, making in all twenty-nine cases of pus tubes, with five deaths, or a mortality of seventeen per cent. These were all severe cases and not cases of removal of adherent ovaries and tubes. In the other institution I operated on four cases of pus tubes with three deaths, or a mortality of seventy-five per cent. I therefore decided to do no more abdominal operations there until our new surgical wing is completed. The nursing of the patients was excellent and every assistance was given me to make the work a success.

I consider the poison, in recent cases of gonorrheal peritonitis, as particularly severe. In the past year I have been twice poisoned during operations on such cases. In one case a scratch from a frayed cuff on the wrist proved sufficient to allow a vaccination with the rapid formation of a pustule; the nurse, who handled the sponges, had two small scratches on two of her fingers, and each of these scratches rapidly became the seat of a pustule. These pustules resembled those frequently found around the lips after a severe rigor. In the other case a small abraded spot on the little finger was the seat of infection, and the nail was lost as a consequence.

Fourthly, the influences brought to bear upon the patient by the details of the after treatment.

It is not my intention to go deeply into this division of the subject, but to state a few bare facts. There are certain conclusions to which I have come from personal observation. A drainage tube should be used after separation of many adhesions and after washing out the abdomen for the removal of peritoneal fluid or septic material. When used for purposes of detecting hemorrhage it should be removed in a few hours; when used after washing out peritoneal fluid or septic material it should be used for a few days, and, when removed, a rubber

drainage tube should be passed through its centre and left *in situ* for a few days longer, so that any subsequent collection of pus may readily find a track through which to burrow to the surface. These collections of pus will occasionally occur around the stump of septic pus tubes, and, as a consequence of isolated septic material that may become lodged between coils of intestine.

When hysterrectomy is performed by the extra-peritoneal method, and there have been many adhesions to contend with, a drainage tube should be used, for a few hours, above the stump. When hysterrectomy is performed by the abdomino-vaginal method a drainage tube should be passed into the cul-de-sac of Douglas, from the front, even though the vagina be packed with iodoform gauze. The tissue around the cervix has a tendency to ooze, and enough blood may lodge in the cul-de-sac of Douglas to set up a fatal peritonitis.

The less we interfere with the inside of the gall bladder, after operation, the better. The gall-bladder seems prone to bleed after much handling of its mucus membrane. I have learned to believe less in the efficacy of purgatives, for the relief of peritonitis, following abdominal operations; they are not of the great value many authors would have us believe. One would think, after reading the literature of the subject, that every case that can be purged will recover. Recovery may occur after peritonitis if no purgative is given, and, in such cases, there is usually a diarrhœa produced by the peritoneal poison. When the bowels cannot be moved by purgatives, and when this diarrhœa does not occur, the patients will die. In the bad cases purgatives may be given by the pailfull without producing any result except that of causing discomfort to the patient by increasing the vomiting.

When the temperature goes down and the pulse goes up and the patient looks dark under the eyes, languid and tired, and is vomiting dark-brown fluid, and the abdomen is distended, it is useless to push purgatives or enemata; the patient will die in spite of all we can do.

I have determined to use the so-called capillary drainage, produced by packing the glass drainage tube with iodoform gauze, no longer. In a recent case, though the upper part of the gauze was wet through, no blood appeared externally; the gauze was not packed tighter than usual. I felt satisfied that there must be more blood oozing from adhesions, and took out the gauze so that

the sucker could be used when an ounce and a half of pure blood was removed. This gauze drainage I consider a dangerous innovation. If the drainage tube is left to detect hemorrhage, its usefulness is lost when packed with gauze. To check such hemorrhage it is necessary to keep the pelvis dry, and this can only be accomplished by means of the suction syringe. We have heard of late that quantities of blood clot may be left in the abdomen and pelvis, and may do no harm. One might admit this to be so in some cases, but it can scarcely apply to cases of pus tubes with rupture of a pus sac at the time of the operation; such blood, if left behind, must readily become infected. Its removal is the only safe course of procedure. It is better never to use a drainage tube than to remove it too soon. I have saved two cases by taking out two lower stitches and reopening the wound. In the one case I replaced the drainage tube in the cul-de-sac of Douglas, and in the other did not; the septic fluid escaped, and each patient made a somewhat tedious recovery.

And now, in concluding these roughly-constructed sentences, a few facts come prominently before me. In enucleating pus tubes the "tactus eruditus" will save many a life. Boldness, with care, are essentials, if a surgeon hopes to meet with success in such cases. It is better not to operate at all, than to do an incomplete operation for the removal of pus tubes or suppurating ovaries. Even though a surgeon may have witnessed hysterrectomies performed many times by others, he will add to his own skill something of value after each hysterrectomy he performs himself. I feel more at home now with these cases than I did at first. We have a tendency to be too much afraid of hemorrhage in these cases, and as a consequence, are apt to be in too great a hurry to apply a rope, rubber or wire clamp. A pair of fingers or a pair of ordinary forceps, used with coolness, will often enable us to avoid ureters, intestines and bladder, when applying the clamp.

With experience, we learn when to stop. In one of my early cases, I met with an encephaloid tumor growing from behind the uterus. During the manipulation, being friable, it was torn. The hemorrhage was so great that I thought it would be impossible to stop it by sponge pressure, and therefore removed the growth, and the patient died in three days. Among my later cases, I met with an exactly similar condition, in a woman considerably older; the same bleeding occurred from the tearing of the friable tumor,

but sponge pressure was used for a considerable time, nearly half an hour, and during this period the sutures were placed, and, to my amazement, the surface became clotted over, and the hemorrhage, even from the large veins, ceased. The patient made a good recovery from the operation, but died from the progress of the disease a month or six weeks later.

I learned from another case that, although iodoform gauze may be passed through the opening in the vaginal vault after abdomino-vaginal hysterrectomy, the drainage of the cul-de-sac of Douglas may even then be imperfect, and pus may collect in the cul-de-sac and cause a fatal termination to the case. I have also come to the conclusion that peritoneal fluid is very apt to become infected, and that when peritoneal fluid is present in any quantity at the time of operation, as it is in cases of papilloma of the ovaries and tubercular peritonitis, it is better to wash out and drain the cavity, than to draw off the fluid and close the cavity; the water thus takes the place of the peritoneal fluid, and owing to its chemical composition, is not as apt to become infected. The large quantity of albumen found in the peritoneal fluid in these cases must make it an admirable culture medium.

III. Discussion on Abdominal Surgery.

3. Hemorrhage After Abdominal Section: Its Place in Statistics.

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NEW YORK.

This subject is of greater importance than the space allotted to its consideration in the works on abdominal surgery would lead one to suppose. Not only has the subject received but scant attention, but the number of cases reported is very small. We hear of them from many quarters, but the medical press has very little to say on the subject. It is not difficult, however, to understand why cases are so infrequently reported. Twenty-five years ago a large number of the cases of abdominal section died; indeed, in one of the large hospitals in this city, whenever an operation of this kind was to be performed, a room was set aside

and arrangements were made for the funeral, confidently looked for. Suddenly the high death rate was changed, as if by magic, to a low one, and what seemed to be impossible became an established fact. In their excitement men lost their sober judgment and statistics were presented which in some cases were more in accord with what men hoped to do than what they had accomplished. Even to-day the most remarkable records are urged by enthusiasts as a standard of what should be expected from an expert operator with a fair amount of good fortune. If these results are to be accepted as a standard, then the odium incurred by an operator who loses a case from hemorrhage is deserved. But these figures are not to be accepted as a standard. They merely indicate to my mind the same good fortune which enables a gambler "to break the bank" and are in wise to be looked upon as what we should expect. I do not wish to make the consideration of these cases personal, and there is no intention to express a lack of respect for statistics, for while the best man may not have the best statistics, the poor man cannot hope to obtain them fairly; but the objection is to their being accepted as a standard. Having referred in a general way to statistics, my position will be more intelligible when I say that a mortality of ten per cent., taking into consideration the great number of uncontrollable accidents, is a good showing, and in cases as they come to the pelvic surgeon a mortality of three per cent. is a remarkable showing.

The importance of placing this question in its proper light is shown by the action of counsel in the case, recently tried, of Jones against the *Brooklyn Eagle*. The experts who testified at this trial were asked the number of laparotomies they had done and it seemed to be tacitly admitted by both sides that this number could be used to estimate a man's qualifications as an operator, as the horseman judges the value of a horse by his record. If the profession allows such ideas to become fixed in the lay-mind without protest, we must not be surprised if the courts, thinking that they are asking the ordinary skill of the expert, should demand impossibilities.

The best argument against accepting these statistics is that they eliminate so many uncontrollable causes of death. We do not propose to consider these causes in detail but will confine ourselves to that one which is the title of this paper. It is not rare for the

general surgeon to observe hemorrhage some time after operation. The writer had a case of alarming hemorrhage which occurred ten days after an operation for repair of the cervix, and had it been within the peritoneal cavity a fatal result could not have been avoided. Hemorrhage after operation, where there is every opportunity to secure the vessels, is not of very rare occurrence, and no surgeon is so bold but that he in some measure guards against it. In case of amputation of a limb, the blood is detected as soon as it soaks through the dressing, but in case of hemorrhage into the abdominal cavity, we have no such warning and, indeed, I believe we have no warning at all until the patient is beyond the reach of help. The drainage tube may in rare cases be of service, but I am of the opinion that its usefulness in this direction has been exaggerated. Delbet has shown by a number of carefully-conducted experiments on the dead human subject and on dogs, that it is almost impossible to keep the peritoneal cavity in communication with the open end of the drainage tube, for, if the intestines do not crowd into the end of the tube, it is soon sealed off by an exudate. I am aware that this view has not gained the general indorsement of the profession, but nevertheless it has been borne out by my experience. If this view is a correct one, the claim of Professor Tait that the drainage tube is of use by removing the secretions and thus aiding in the formation of a clot by preventing the dilution of the blood falls to the ground. Tait calls attention to another point which is of greater importance. In the peritoneal cavity we have a condition which is in a great measure peculiar to this part of the body. The bleeding is from a free surface where there is no connective tissue to act like a web and offer a surface to which the coagulating blood can adhere. The suction action of the diaphragm and the movements of the abdominal viscera tend in some measure to dislodge forming clots. Another fruitful source of hemorrhage and one to which we shall allude later, is the formation of thrombi. This is apt to occur when the broad ligament forms a part of the pedicle.

Death from hemorrhage frequently occurs and the true cause is not detected at a partial autopsy — I say partial autopsy because many such cases are not thoroughly examined. The medical man is worn out with anxiety and does not press the question of an examination, or the friends peremptorily refuse. The operator then loosens the stitches and makes a hasty examination of the

pelvis. Finding this cavity free from blood, and the evidences of a commencing peritonitis, he lays the death of the patient at the door of the latter condition. This mistake arises from the fact that the foot of the bed has been elevated when the patient showed signs of syncope and the blood gravitated toward the diaphragm. This fact has an important prophylactic bearing. We should be careful about raising the pelvis in cases of hemorrhage for fear that not only will the existence of clotted blood be hidden but it will be difficult or almost impossible to remove it.

There are many reasons which might be given to prove that hemorrhage into the peritoneal cavity is less easily controlled and more likely to persist than in most other parts of the body, and we may fairly ask how can we hope to escape a danger in this case which we cannot control under more favorable conditions. If all the cases of fatal hemorrhage were reported the clinical records would be in accord with what I have claimed in regard to the frequency of this condition. Since I have had the misfortune to lose a case from hemorrhage I have had over forty cases narrated to me by almost as many operators. All these cases are unpublished, and, though a few of the men told me that I was at liberty to publish their names in connection with their case, it seems better to treat it in an impersonal manner; this I will do by giving the deductions drawn from their study. While I have alluded to those who do not publish their cases, it is not my intention to blame them, for, in the present state of opinion, an operator who loses a case from hemorrhage will meet with criticism which, in the presence of the aforesaid statistics, will be severe and, possibly, injurious. I have heard Doctor Thomas say, in regard to a man who boasted that he had never lost a case from hemorrhage, "I do not know how large his experience is, but, when it is large, he will not be able to make such a statement."

Before giving my general deductions I will present the case occurring in my practice:

Miss H., under thirty years of age, had noticed that the abdomen was enlarging for two years. She had not menstruated for two months before I saw her, and had been irregular the month before the last flow for the first time in her life. Examination showed a thin-walled cyst, as large as a fœtal head at term. The vagina was so small, and the patient was so nervous, that the vagino-abdominal method was not available, but the breasts were virginal and the hymen, a delicate membrane, was unruptured. The urine was normal. When the abdomen was opened, the cyst presented and

looked like the uterus on account of the vascularity of the broad ligament which covered it. A vein crossing over the tumor was as large as a lead pencil. The fluid was clear and easily evacuated, and after tying two adhesions which connected the tumor to the abdominal wall, the pedicle was brought into the opening. This was transfixed with a round non-cutting needle, carrying a double silk thread, and after the loops were locked one thread was passed completely around the stump. The stump was allowed to fall back, so that it might be examined while no traction was made on it, a very necessary precaution, and as there was no oozing, it was not further regarded and the operation was completed. It was noticed that the stump did not fall back as far as usual, on account of the tension of the broad ligament. The ligament looked puffy about the stump and I am now convinced that there was a collection of blood there at the time. The following is the pulse, temperature and respiration record :

Day of operation: A. M., temperature, highest, 100; lowest, 99.

Day of operation: P. M., temperature, highest, 100; lowest, 99; pulse, 56, 76, 95, 90; respiration, 24, 22, 28, 26.

First day after operation : A. M., temperature, highest, 101; lowest, 99.8; pulse, 104, 99, 100, 98; respiration, 32, 16, 36, 30; urine, 18 oz. P. M., temperature, highest, 101; lowest, 100.5; pulse, 100, 99, 102, 99; respiration, 36, 30, 33, 30; urine, 10½ oz.

Second day after operation: A. M., temperature, highest, 101; lowest, 100.4; pulse, 107, 102, 100, 103; respiration, 30, 37, 32, 32; urine, 10 oz.; P. M., temperature, 101.7; lowest, 100.7; pulse, 100, 102, 102, 99; respiration, 28, 32, 34; urine, 11 oz.

Third day after operation : A. M., temperature, highest, 102; lowest, 100; pulse, 98, 92, 97, 104; respiration, 36, 30; urine, 6 oz. P. M., temperature, highest, 103.1 ; lowest, 102; pulse, 112, 116, 120, 118, 114, 118, 132, 134, 128; respiration, 36, 36, 40, 42, 40, 40, 44, 44; urine, 12½ oz.

Fourth day after operation : A. M., temperature, highest, 103; lowest, 102; pulse, 136, 144; respiration, 48, 48, 55, 62, 64; urine, 1 oz.

As will be seen there was nothing to be remarked in these particulars on the day after the operation, except that the respiration and pulse were somewhat accelerated and the temperature reached 101 degrees in the vagina. The patient was of a highly nervous temperament and had a mild bronchitis, so that this slight elevation of temperature had but little significance.

On the second day there was no change, except that the pulse was somewhat higher. There was little or no abdominal tenderness.

On the morning of the third day I was unable to see the patient; she was reported to be in a much better condition by a competent medical man. In the afternoon the pulse ran up and the temperature reached 104° F. by the vagina. The following morning she died.

In regard to reopening the abdomen, the previous cases operated on in the same room and under the same conditions had developed higher temperatures, than did the patient, until she was beyond the reach of help. The symptoms that she presented were those which might have arisen from the slight bronchitis, a commencing abscess of the abdominal wall, or from that rare but by no means to be neglected condition—malarial poisoning. I

have opened the abdomen several times without finding hemorrhage with more marked symptoms.

The autopsy showed the following conditions: Pelvic and abdominal organs normal, except there were some slight degenerative change in the cortex of one of the kidneys. The pelvic and abdominal cavity contained a large amount of blood. Part of this was fluid and part had formed large clots. There was evidence of a commencing peritonitis. The pedicle was covered with clots and a portion of the peritoneum had slipped out of the constricting band of silk, and the opening made communicated with a large cavity containing a blood-clot. The death was from hemorrhage primarily, and secondarily, from a commencing peritonitis.

A portion of the broad ligament had slipped out of the embrace of the ligature and a mass of blood had dissected up the broad ligament. I think this blood commenced to flow before the ligature slipped, and was to a great extent the cause of the mishap. That the blood is capable of doing this is shown by such cases as that related to me by Doctor Emmet. In his case the whole of the peritoneum lying on the pelvic floor was raised to such an extent that it was separated from the kidney. In my case the ligature placed the greatly hypertrophied broad ligament on the stretch, thus lifting it from its attachment and inviting the collection of blood which formed beneath it. We then had a solid mass inclosed by a non-elastic membrane. The patient vomited violently when she came from under the influence of the ether, and it was this which may have favored the slipping out of the pedicle. The ligature found at the autopsy was tightly constricting the portion it still held, and the careful examination given to the stump before the abdomen was closed precludes the theory that it was not included at the time.

In studying the cases which I have been able to collect I have noted the following facts:

The greater number arose from the slipping out of the hypertrophied broad ligament from the grasp of the ligature. Next in importance to this as a cause was the reliance on pressure by means of sponges or gauze. The debilitated condition of the patient, combined with the long operation, induced the surgeon to try to control the bleeding points by a makeshift. Two cases were due to the slipping of a clamp after a hysterectomy.

A cause of hemorrhage to which I had the honor to first direct the attention of the profession, and which Doctor Polk confirmed, is occasioned by the use of the Trendelenburg posture. In this position the flow of blood may not be noticed because, with the hips elevated, the blood pressure in the pelvis is much reduced; but let the pressure be increased by placing the patient in a horizontal posture, and the hemorrhage may be free.

But of all the causes given, none are so fruitful in occasioning disaster as those in which we deal with a broad stump that contains hypertrophied broad ligament.

Certain conclusions have been reached by a careful consideration of the experience of myself and others.

First. When the abdomen is closed after a section, the case is closed. No treatment short of that which is aggressively bad, will influence the after result. Nothing, therefore, should be left undone, with the reservation that the case may require reopening. It is better to run the risk of death from shock than the risk of death from hemorrhage. Many of the fatal cases are the result of that state of mind which the operator revealed when he said, "I was afraid that the patient would die on the table, and, therefore, quickly terminated the operation by pressure on the bleeding points by the gauze-drain or sponges."

Second. When symptoms of concealed hemorrhage are present, it is too late to afford the patient more than a forlorn hope.

Third. The use of the drainage tube to indicate hemorrhage is not to be relied upon.

Fourth. It is best, when possible, to enucleate all cases where the hypertrophied broad ligament forms a part of the pedicle.

Fifth. In cases of suspected hemorrhage, *the pelvis should not be elevated*, for in this position the blood will gravitate out of the pelvis and collect under the diaphragm, where it is impossible to remove it without eventration. This blood will, in many cases, set up a peritonitis, and it is this peritonitis which has been blamed for many deaths due primarily to hemorrhage.

Sixth. That a patient may have no bleeding in the pelvis when she is in the Trendelenburg posture, because the arterial pressure is lowered, but when the pelvis is lowered, bleeding of a dangerous character may occur.

IV. Discussion on Abdominal Surgery.

4. The Technique of the Abdominal Incision: Its Closure and its After-management.

By WILLIAM WARREN POTTER, M. D.,
BUFFALO.

That the abdominal incision has been of late a subject of much discussion with reference to its making, closure, and management, is indicative of the fact that there are many questions relating thereto that are yet unsettled or upon which opinions are divided. It will not be the purpose of this paper to enter into the field of controversy, but to record the personal experiences and opinions of its author.

The Toilet of the Field of Operation.— We will not stop here to consider the preparation of the surgeon's hands, which has a kinship to the subject and cannot escape reference; but we may pause to remark that indissolubly associated with the abdominal incision and to be considered as preliminary thereto, is the question of the toilet of the field of operation. If this is neglected or indifferently made, a prime factor in the problem of prompt union is left out of the case. Without entering into minute detail it is proper for us to remember that this anatomical region is especially adapted to invite the lodgment of bacteria. The umbilicus above and the pubic region below are liberally endowed with folds and tissues that form a suitable habitat for microscopical germs. Then, again, the sebaceous and sudoriferous glands are distributed with profusion over the abdomen, and their secretions are frequently liable to decomposition, in the débris of which colonies of bacteria are generated. Hence, it is important that the toilet of this region should be made with extraordinary care, and it may be briefly stated to consist of three steps: — first, of the usual bath; second, the application of spirits of turpentine, which is an admirable germicide, then ether should be applied with considerable friction; and third, another washing with warm sterilized water should be followed by bathing the surface with a solution of bichloride of mercury $\frac{1}{1000}$. Several layers of antiseptic gauze

should then be dipped into the solution, wrung dry and placed over the abdomen, the whole covered by a dry towel, and this dressing should not be removed until the operation is begun.

The Abdominal Incision. — In an abdominal operation almost the first question that the surgeon mentally asks himself is, "Where shall I make the first stroke of the knife, and how long shall it be"? There has been some difference of opinion as regards the location of the incision, but I believe I express the best judgment of the best operators when I assert that this ordinarily should be at a point about midway between the umbilicus and the pubes. Here we may make a small exploratory incision endeavoring to strike the white line before cutting through into the abdominal cavity. The linea alba is not always easily found, especially in obese patients, as well as in others where the anatomical landmarks have been disturbed or obliterated by the pathological growths for which the operation is to be made. While I am not inclined to charge any considerable proportion of post-operative herniæ to a failure to incise through the white line, I yet prefer to cut through it if possible. It makes a neater operation to do so, and it makes the work of closure simpler, and, therefore, shorter.

It is manifestly impossible to lay down any hard and fast rules with reference to the length of the incision that shall apply in every case, since each is more or less a law unto itself with reference to the details that apply to incising the abdominal walls. For instance a pus tube or cirrhotic ovary may be turned out through a much shorter incision than could a uterine myoma. While it is true that many operators are indifferent as to the precise length of the incision, holding that very little difference is exercised over recovery by a long or short incision, yet it must be admitted that, taken all in all, there are many forceful reasons why the incision should be as short as is consistent with rapid intra-abdominal work.

Experience has indubitably shown that the prompt recovery of the patient in an average of abdominal operations is in direct ratio to the brevity of anesthesia. If the incision be as short as possible the time of closure is reduced to a minimum, and hence the narcosis is that much shortened. It is very easy to make a long incision, and it can be quickly done, but not so with reference to its closure. Here it takes time to repair the damage done by the wound, and time is an outlaw that every abdominal operator

should feel called upon to slay. Every stitch must be carefully and accurately taken, and to do this properly demands a skill and patience that cannot be placed in juxtaposition with time. The rule should be to cut quickly down on the peritoneum with a few short and rapid strokes of the knife; the layers should be lifted quickly by operator and assistant through the means of catch forceps, the knife severing the tissues between the beaks of the instruments. No doubt much practice is required to do neatly and quickly even this simple bit of surgery, but it is part of the work that must be learned with certainty and precision, for there is no excuse nowadays for consuming ten or fifteen minutes in reaching the abdominal cavity.

It were better that every incision should be begun with the idea of its exploratory character only, for it is easy enough to enlarge upward or downward after the necessity for doing so has become manifest. While making the incision it is important to avoid the use of hemostatic forceps as much as possible. Hemorrhage should be restrained by hot sponges, or slight torsion if the hot sponging fails; or, this failing, then catch forceps can be applied for two or three minutes only. There is little doubt that imperfect or delayed union of the incised surfaces has been caused in many instances by the unnecessary or prolonged use of hemostatic forceps. When these forceps are allowed to remain for a considerable length of time there is danger of causing the tissues to become necrotic, thus provoking suppuration in their track.

The Closure of the Incision.—It is not the province of this paper to deal with the details of the operation within the abdominal cavity, hence no reference is made in it to intra-abdominal technique.

After completing the operation, the question of closure is next to be considered. I pause a moment to remark that the edges of the incision should be carefully cleansed by sponges dipped in hot distilled water. This requires some care, since retraction of the folds may easily entangle drops of pus or other septic material within the interstices of the tissues. Theoretically, this cleansing were better done through the employment of irrigation, as sponges are apt to either press the septic material into the tissues, or remove hemorrhagic infracts which have closed the mouths of the vessels, and thus renew hemorrhage; but, practically, it is not always easy to do this. Careful sponging will generally answer

every purpose. Intimately connected with the consideration of the closure of the incision is the material with which the closure shall be made. This must first be decided upon, because the *method* of closure will be largely influenced by the material used.

The advocate of the terraced suture demands two or three different kinds of sutures for his work, while with the through-and-through stitch but one material will be needed. The former closes the peritoneum with a fine animal suture, the fascia with a heavier and stronger material, and finally the skin and the superficial fat are sewed with a fine suture again. The advocates of the buried animal suture base their preference for it on the grounds that it prevents hernia as a sequela, that it does not cause stitch abscesses, and that it in every way contributes to secure union by adhesion On the other hand, it must be confessed that the application of this suture consumes more time, thus prolonging anesthesia, and it has not been proven that post-operative ventral herniæ are less frequent after this method than after the employment of the ordinary through-and-through stitch, or suture *en masse*. A considerable experience has contributed to increase my confidence in the latter method, which is simpler, more rapid of execution, and when properly done furnishes ample safeguards against post-operative sequelæ. I say, when properly done, and here I may be pardoned for pausing a moment to mention details. The material to be used may be silkworm gut or Chinese silk, and I hesitate not to declare my preference for the former. I believe that in silkworm gut we have the nearest approach to an ideal material for the abdominal suture. It may be that the future may unfold to us some more perfect material for this purpose, but in the light of our present knowledge, I believe nothing better has presented itself. It is non-absorbable and non-absorbent, is easily sterilized, strong, firm and non-elastic. Great care must be exercised in the introduction of the suture to carefully observe the natural kinship in the approximation of the structures,— peritoneum to peritoneum, fascia to fascia, skin to skin. I cannot affirm that there is yet any proof that fascia unites with fascia, muscle with muscle, and so on through the various layers, but pending its demonstration, I am convinced that it is better practice to place the tissues back nearly as nature arranged them. If the incision has been made through the linea alba, this approximation will be comparatively easy and simple, but if not, then

great care must be exercised in unfolding and drawing out the retracted tissues. This is, however, generally accomplished by the assistant, who unfolds and makes traction on them while the operator passes the needle. It is a good plan to thread both ends of the silkworm gut into straight needles, passing one needle through the right group of layers and the other through the left. Here, as in plastic operations on the genital tract, a stout, straight needle is superior to a curved one.

The sutures should be introduced in the ratio of three to the inch, and should be carefully caught in the grip of catch forceps as fast as inserted, thus to be held secure until all are in place. They should then be drawn taut *en masse* by the hands of the operator, who carefully observes that there be no coagulæ or oozing between the approximated layers. The flat sponge previously introduced into the abdominal cavity to receive any drippings from the stitch-holes is now removed, and the sutures tightened and tied one by one from above downward, care being taken that the tissues be not strangulated by overtightening. In case drainage is employed, the tube should be inserted between the last and third last sutures, the second being left slack to be tightened after the withdrawal of the tube. When all the stitches are finally tied, the lines of the incision should be dusted with some antiseptic powder; a mixture of aristol and boracic acid, in the proportion of one to five, makes a very good one. Many abdominal surgeons use iodoform for this purpose, but there are objections to it which I need not now discuss, beyond mentioning the fact that it does not agree with every person's skin, and its odor is also a serious bar to its habitual use.

The After-management.— The after-management cannot be disassociated with the dressing, and the use of the drainage tube modifies both the dressing of the wound and its after-management. It may be asserted as a general proposition, that the dressings should be disturbed as infrequently as possible after they are first placed. Unless they become soiled by unusual drainage, or unless there be suppuration in the track of the incision, or some unlooked for complication arise, they should not be disturbed for a week, beyond the freshening of a layer or two of the gauze. If the drainage tube is not employed, and there are no complications, then the dressings may remain undisturbed until the sutures are removed. These should come ordinarily away by the eighth or

ninth day, though silkworm gut may remain a much longer period without harm.

Over the antiseptic powder is placed the antiseptic gauze in layers sufficient to make an adequate dressing, all to be held in place by a flannel many-tailed bandage secured with safety pins. In case a drainage tube is inserted, the open end of the tube is brought up between the layers of the gauze, cut to admit its protrusion. Over the mouth of the tube is sprung a piece of rubber dam, 6x6, the corners of which are pinned over the end of the tube which is plugged with absorbent antiseptic cotton. This admits of the inspection of cleansing of the tube without disturbing the main dressing, which may remain for a week, unless there are special indications for its changing. After the tube has served its purpose it is withdrawn and the slack stitch tightened, as before stated.

Conclusions.— Whatever method is adopted with reference to the closure and after-management of the abdominal incision the aim is, in all cases, primarily to obtain union by adhesion. Not only this, but it is a desideratum to have that union so strong that it will not permit the protrusion of the viscera and thus leave a hernia in its track. The asepsis must be so complete and the sutures so well adjusted that stitch-hole abscesses will not occur. If the suture material is not absolutely aseptic, or if the stitches are over-tightened, the prompt healing of the wound will be interfered with. Every one aims to leave a strong cicatrix that will not breach down and permit separation of the muscular layers and hernia. It is a matter of great doubt whether these secondary misfortunes can always be prevented by any known method of closing or treating the incision. The most experienced operators have about the same proportion of hernia following in their track as those who operate less frequently. The presumption is very strong that other conditions contribute to the production of ventral hernia, rather than the method of closing. Where the abdominal walls are very thin and over-stretched, in connection with large tumors, these sequelæ are more likely to happen, and it has been asserted that in emergency cases where the patient is in extremis, and the closing of the wound must be done in haste, ventral herniæ are not more frequent than in cases where the closure has been made in the most careful manner. The inference is not to be made from this that we should not bring to each case

all the care in adjusting the sutures, and in every detail connected with the closure of the incision that a skilful surgical technique suggests. But I asseverate that it is unwise to prolong anesthesia for the purpose of making that exceedingly minute and detailed closure which the terraced suture requires. Experience is demonstrating constantly that the so-called *en masse* suture, with the layers carefully put in place, answers quite as well as the complicated, technical and time-consuming buried suture.

There are many interesting questions connected with this subject that might be discussed with profit, but as this paper is but one link in the chain of this discussion, the flight of time warns me not to stand longer on the ground that ought to be occupied by another.

V. Discussion on Abdominal Surgery.

5. Cysts of the Epigastrium.

Abstract of the paper.

By DUDLEY P. ALLEN, M. D.,
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This subject was chosen because the term cysts of the pancreas, which has commonly been used for such conditions, does not seem to be the correct one in the two cases reported. The cases seem to be rather a collection of fluid in the omental bursa.

The first case reported was of a woman with a fluctuating tumor below the ensiform cartilage, and a little to the left, in which, after the withdrawal of fluid by a small aspirating needle, the diagnosis had been made of a cyst of the pancreas. The cyst was opened, its contents removed and the cavity drained. The patient recovered entirely. Nearly one year later the patient died in childbirth, and, upon post-mortem examination, it was found that there were cicatricial bands running from the incision in the abdominal wall down to a point near the tail of the pancreas. The duct of Wirsung, extending the whole length of the pancreas, was unobstructed, and the pancreas appeared normal in every respect, showing no signs of previous disease. The fact that the condition of the cyst presented the appearances of an old

extravasation of blood, led the writer to the conclusion that the case was one due to hemorrhage, and the absence of any disease of the pancreas suggested that this hemorrhage might have been into the cavity of the omental bursa.

The second case was of a patient about twenty years of age, who, when a boy, had received a severe blow in the epigastrium. This had been followed by pain, and a tumor of the epigastrium had existed for a long time. This was opened and its contents removed.

The contents, on examination, contained large quantities of crystals of cholesterin, fat and biliary acids. Without being able to determine absolutely its origin, it seemed probable that it had come from the liver. The location of this cyst corresponds in all respects to those ordinarily described as cysts of the pancreas. The conditions found suggested the probability of its being a collection of fluid in the omental bursa. The writer referred to an observation of this sort which had been made by Lloyd of England, who was the first to speak of this condition. The fact is stated by Lloyd and also by Hyrtl that in a certain proportion of cases the foramen of Winslow is closed, so that fluid escaping into the omental bursa would not enter the peritoneal cavity.

The writer has made a series of injections of this bursa, to determine the extent to which it could be extended, and the relation which it bore to other organs, and has found that in children, in addition to filling this cavity, the folds of the larger omentum could be entirely separated from each other by material injected into this cavity. The location of the bursa thus distended corresponds in all respects to that often described as cyst of the pancreas.

Dr. Allen suggested that it was possible that repeated extravasations of blood might occur in the omental bursa and be absorbed. Experiments conducted on rabbits, by Prof. Gad, of Cleveland, showed that one-third of the rabbit's blood could be conducted from the jugular vein into the abdomen, and that the whole amount could be absorbed in about two hours. By observations made through an opening in the thoracic wall it was positively demonstrated that this absorption took place through the lymph channels, and not through the veins.

Observation has shown that the omental bursa is in contact with the diaphragm over perhaps one-tenth or one-twelfth of its surface, and it seems probable that if blood can be absorbed so

rapidly from the remaining surface of the diaphragm it might be possible for it also to be absorbed from that portion of the diaphragm which forms a part of the boundary of the omental bursa. The writer stated that further investigations were to be made to determine this point.

Specimens of diaphragms were shown in which absorption had taken place, each showing in a striking way the distended lymph vessels.

The deductions of the paper were that although collections of fluid in the region of the epigastrium have in certain cases been demonstrated to be connected with diseases of the pancreas, and that they could properly be called pancreatic cysts, there are other collections of fluid resulting in certain instances, at least from injury, and that these later are collections of fluid in the omental bursa. While the probabilities are that blood thus extravasated may at first be absorbed in part or in whole, it is probable that with recurrences of the escape of fluid into this cavity, conditions favoring absorption may cease to exist, and the fluid remain as a cyst.

VI. Discussion on Abdominal Surgery.

6. Appendicitis: the Connection Between Its Symptomatology and the Gross Anatomy of the Appendix.

By JOSEPH D. BRYANT, M. D.,
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Whatever poor excuse I might offer as an apology for the infliction to be caused by the presentation of this paper, becomes a good reason when sustained by the fact that I have been requested to do so by our mutual and valued friend, Dr. Vander Veer. Dr. Vander Veer even suggested the title, and, no doubt, based his desire therefor on the fact that through my interest in the subject under consideration something had been learned of importance as to the value of the comparative relationship of the vermiform appendix to its contiguous tissues, regarding appendicitis. Dr. Vander Veer believes that much light can be shed on the subject of appendicitis by the study of the modifications in its clinical

history, as influenced by the physical characteristics of the organ. The further fact that I concur with him in this regard is an additional reason for my presence here at this time.

At all events, the anatomical peculiarities of the appendix that affect directly the symptomatology of this defect — appendicitis, relate especially to the location, direction and extent of the appendix. The local symptoms are the ones chiefly modified by the preceding characteristics of the organ. The emphatic symptoms belonging to this category may be briefly stated as pain, tenderness, tension, and tumor.

The situation and character of the pain, together with its reflex manifestations, comprise its important elements as modified by the individuality of the diseased appendix causing it. If the pain be dull and throbbing, and be influenced but little, if any, by respiratory movements, the involvement of connective, rather than serous tissue, is indicated. Later in the case, however, the supervention of serious painful phenomenon may be slowly or quickly announced. Appendicitis with primary fibrous tissue involvement is necessarily rare, as then the appendix is extra-peritoneal, or is completely environed by inflammatory adhesions, the result of repeated attacks. In but three instances of one hundred and forty-four autopsies made for other than appendicular trouble was the appendix found outside of the peritoneal cavity. In one of these it was upward behind the cæcum and colon; in another, behind and near to the inner border of the colon, extending even to the liver; and in the third, it was behind the colon, near to the outer border. It is in accordance with the well-known law that the character of pain is modified by the kind of tissue involved, to assume that had either of these appendices been diseased, that the primary pain would have been of the connective tissue type, and continued so until peritoneal involvement had ensued, either by extension of the inflammatory process or of abscess rupture. It was my good fortune but a few years ago to meet with a well-pronounced case of this kind in Bellevue hospital. In this instance a dull, throbbing pain had been present for some time, beneath the ascending colon, along with tenderness and induration there. Suddenly the acute, agonizing pain, indication of peritoneal involvement, occurred, quickly followed by peritonitis and rapid death. At the time of the consultation I ventured to predict: (1) the presence of a diseased ap-

pendix behind the cæcum and colon; (2) extensive connective tissue inflammation and abscess; (3) rupture of abscess into the peritoneal cavity. The results of the autopsy justified each prediction. In many cases of recurrent appendicitis the familiar pain of acute attacks is not present at the outset, and may not appear at all; and, too, respiratory movements cause but little, if any, additional infliction. I saw such a case as this but a few days ago while recovering from a fourth attack, with intervals of one year each. It is, of course, superfluous to say, that primary intra-peritoneal appendicitis causes acute pain, for this is the typical manifestation of the disease. It is proper to add, however, that the mobility and length of the appendix have much to do with the severity and extent of the pain, and also with the rapidity of the diffusion of the poisonous products of the disease. All are aware that the appendices of some are comparatively "free" in the peritoneal cavity, their movements between the fields of the contiguous intestines being limited only by their mesenteries or their attachment to the cæcum. The free extremities of such as these are observed often extending upward from between the intestinal loops, and at this time can be aptly compared to the erect position of the deadly cobra when prepared to strike. Let us now glance for a moment at the records attesting the freedom of movement of intra-peritoneal appendices. In 66 examinations, 40 per cent of them were "free," in that one-half of the entire length was surrounded by peritoneum. The remaining 40 had mesenteries varying from three-fourths to above an inch in length. Surely, gentlemen, the length and the freedom of movement of a diseased intra-peritoneal appendix exercises an important influence on the intensity and area of the pain, and the rapidity of the diffusion of the disease-producing elements. Dr. Reginald Fitz, in his oft-quoted and classical article published in the *American Journal of Medical Sciences*, October, 1886, says: "Sudden severe abdominal pain is the most constant, first, decided symptom of perforating inflammation of the appendix." As a proof of the fact he shows that this manifestation happened in 216 out of 257 cases, or 84 per cent of the number. If we now turn our attention to the per cent of "free" appendices, and those with mesenteries above an inch in length, we find their sum to be 84 per cent of the entire number, also. Certainly this similarity of percentages is a strange coincidence at the least, and leads one to repeat

the remark, "There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy." While it is doubtless true that the situation of pain is regulated to some extent by the location and direction of a diseased appendix, still, neither time nor utility will permit me to indulge in hair-splitting distinctions in this regard, based on whether the appendix extends outward, downward, inward, etc., etc., as this feature alone possesses no practical importance, except when the appendix extends beyond the usual limit. It may not be amiss to add in this connection that the appendix runs inward in about 25 per cent; that it is curled behind the cæcum in about 20 per cent, and extends into the pelvis in 14 per cent of all cases. The average length of the appendix in the male is $3\frac{1}{2}$, and in the female $3\frac{1}{10}$ inches, as deduced from 144 examinations. The importance of the frequency (14 per cent) of intra-pelvic extension, should not be considered lightly. Nor can the differences in the lengths of the organ, as between the sexes, be deemed insignificant, when it is noted that the half-inch difference between them causes the appendix of the male to enter the pelvis twice as often as it does in the female sex. The clinical importance of intra-pelvic extension of the appendix cannot be gainsaid. In a diseased appendix there located, the pain may be nearer the hypogastrium, and, too, it may involve the pelvic peritoneum and modify the action of the pelvic viscera during functional activity. And especially are those facts true if the extremity of the appendix be the portion involved by gangrene or perforation.

Thus far only direct pain has been considered, of both the acute and dull types. Reflex pains, while less important than the direct, are, nevertheless, of great diagnostic significance. Frequently during the course of an attack, and especially at the outset, referred pain may be present in almost any part of the abdomen. And, too, it is observed not infrequently in the testicle, perineum, rectum, thigh, lumbar region, etc. In fact, referred or reflex pains may occur at the seat of the distribution of any spinal nerve directly involved by the disease. Fitz has shown that in 213 cases of appendicitis pain was present in the right iliac fossa in 48 per cent; in the abdomen in 36; in the hypogastrium in 5; in the umbilical region in 4; in the epigastrium in 2, and one per cent each in the stomach, hepatic region, left iliac fossa and right hip and groin. I myself treated a case

on June 23, 1886, in which the pain was referred to the umbilical region only. That this was a genuine case cannot be gainsaid, since the appendix was found to be perforated and was removed. The anatomical reason for the occurrence of these reflex pains can be explained by the well-known influence exercised by the abdominal sympathetic ganglion on the contents of the belly. A misplaced appendix or a wandering cæcum will account for an unusual pain site in a few instances. Without amplification, it is sufficient to say now that pain in the right testicle, with or without its retraction, indicates the direct involvement of the genito-crural nerve. The same may be said also of the ilio-inguinal, anterior crural, etc., when pain is referred to their respective distributions, in connection with recognized or suspected appendicitis.

Tenderness. — This, the second of the inherent manifestations of appendicitis, may be either local or general, superficial or deep, keen or dull, depending on the extent, location and character of the inflammation and the variety of the tissue involved by it. If the extra-peritoneal connective tissues be first involved, as when the appendix is located behind the colon, or behind a cæcum not surrounded by peritoneum, or outside the peritoneum elsewhere, and perhaps between the layers of the broad mesentery of the appendix, the tenderness is local, deep seated and dull at the outset. That such cases as these are rare is obvious, on account of the great infrequency of appendices there placed. Quickly, however, the dull tenderness is supplemented and obscured by the acute variety, due to the rapid extension of inflammation to the contiguous peritoneum. The rapidity of the supervention of the acute pain is in direct proportion to the gravity of the lesion and the amount of the connective tissue involved by it. Dull tenderness of much duration is indicative, therefore, of a post-colon position of the appendix, and especially is this true in the absence of a meso-colon, which, according to Treves, happened in 52 per cent of the subjects examined by him. Acute tenderness is, of course, strong proof of the involvement of the peritoneum, and its location may be accepted as indicating the site of the initial lesion, when it is circumscribed and marks the outset of the attack. If this fact be true, then, indeed, no definite point of tenderness can be established that may be regarded as diagnostic of this disease. The varying direction of the appendix already cited,

the differences in its length and in the situation in it of the point of greatest disease, together with the fickleness of the location of the cæcum from which it arises, all conspire to make the establishment of such a point impossible, and a reliance on it impracticable and misleading. Of general tenderness I will say but little, since it cannot be regarded as indicative of a circumscribed process, and is, therefore, not to be considered as of much practical bearing on the arrangement of the appendix. It is proper, I think, to say that in those cases of appendicitis observed by me, in which the diseased appendix was "free," the area of tenderness was far greater than in those not so freely movable.

Tension. — This expression refers mainly to tension of the abdominal walls; a tension that may be limited to the side of the attack or be more or less general, according to the extent of the inflammation associated with it. The presence of this tension phenomenon is of beneficent significance and should incite the profoundest respect of the most sceptical minds. The motor nerve fibers that animate the abdominal muscles are from the lower intercostal, and are intimately connected with the sympathetic supplying the abdominal viscera, through the lower thoracic-ganglia from which the splanchnic nerves are derived. As a result of this arrangement, in acute peritonitis the muscles of the abdomen become quickly and finally contracted, and thus shield the underlying viscera from external force, and keep them as quiet as it is possible to do by physical means alone. Tension of the right rectus abdominis in appendicitis is an early and important symptom and indicates the presence of limited peritonitis, and fulfils the conservative purposes already stated. And for these reasons the left rectus goes on guard too, when its subjacent viscera are similarly involved. Muscular tension in this disease is not limited entirely to the abdominal walls, since the psoas and iliacus muscles also, from nervous involvement or direct implication, contract, causing flexion of the thigh. The bladder and rectum become fretful often, especially if the diseased appendix extend into the pelvis or be attached to the peritoneum at its brim. The cremaster muscle exercises its prerogative on the testicle, if the genito-crural nerve be implicated.

Tumor. — This symptom is of dual importance on account of its diagnostic and therapeutic significance. The former attribute alone concerns the tenor of this paper. That the situation and

extent of the diseased appendix has much to do with the location and the determination of the presence of tumor cannot be denied. Generally speaking, the location of the tumor indicates the situation of the lesion, and it is especially significant, if the tumor be small, firm, deep-seated and fixed in its position. If, on the other hand, it be large, not firm, superficial and movable, its bearing on the site of the initial disease is of a general character only. When present, according to Fitz, tumor is detected by palpation from the first to the eighth day of the attack inclusive. In 24 cases, it appeared in one on the first day; 3 on the second; 4 on the third; 2 on the fourth; 4 on the fifth; 5 on the sixth; 4 on the seventh; and in 1 on the eighth day. The third, fifth and sixth days are noticed to be the most prolific ones. Tumor may be present early and yet be not detected till later in the disease, owing to its obscure position. As, when associated with a diseased appendix that is located behind the cæcum (22 per cent); when placed behind the colon (2 per cent); when extended into the pelvis of the intra-pelvic portion to the diseased part (14 per cent); with a tympanitic cæcum and with general tympanitis irrespective of its location. In the intra-pelvic cases tumor may be detected often there and not elsewhere, by rectal or vaginal examination. Still in these cases tumor may escape the vigilance of the closest scrutiny. Owing to time limit I have dwelt only on the leading cardinal symptoms, leaving consideration of the rarer and more curious manifestations for another time. In closing, permit me to submit the following conclusions for your consideration.

(1.) That the location, direction and extent of the appendix have an important bearing on the clinical history of appendicitis.

(2.) That the well-recognized variations of the appendix in length, direction and location, and the varying site of the cæcum and of the seat of the disease of the appendix, make the establishment of a definitely seated diagnostic point of tenderness unwise and misleading.

VII. Discussion on Abdominal Surgery.

7. Diagnostic Palpation of the Vermiform Appendix.

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Nothing systematic has, to the writer's knowledge, as yet been published regarding diagnostic palpation of the vermiform appendix. The only conditions sought to be established by palpation have been either tenderness on pressure or the presence of a tumor or of fluctuation. The idea that the normal or slightly enlarged appendix can, as a rule, be recognized by the touch, previous to opening the abdomen, seems never to have been seriously entertained. This *a priori* judgment upon the case is, however, founded upon fallacious lines of reasoning and not at all consonant with the facts. The size of the appendix, its deep situation and the character of the structures overlying it have all been deemed insurmountable obstacles to its successful palpation. It is the writer's purpose, in this communication, to show how all these obstacles can be easily and successfully overcome.

The author's practical studies upon palpation of the appendix vermiformis extend back somewhat over a year. It may be added that practically all of his experience has been gained upon women, only three cases of appendicitis in the male having, during that time, come under his observation.

The following methods have been employed in the practical study of the subject:

1. Palpation of the appendix vermiformis in practically every woman whom the writer has had occasion to examine during the past year.

2. Critical palpation of the appendix in every case upon which a cœliotomy for any purpose was contemplated, and, when practicable, comparison of the condition of the appendix, as ascertained at the cœliotomy, with that found at previous palpation.

3. Search for the appendix, during a cœliotomy, by palpation from without, and verification of the correctness or otherwise of the finding by the finger within the abdomen.

4. The establishment of the diagnosis, appendicitis, by palpation, with subsequent operation for removal of the appendix, based upon the diagnosis thus made.

The practice of palpation of the vermiform appendix, as a routine method in the examination of every woman, has led to a recognition of the facility with which the appendix may, under ordinary circumstances, be palpated. Such palpation is best performed in the following manner. After completion of the ordinary bi-manual examination of the pelvic organs, the woman is drawn upward upon the table, to the extent of a foot or so, her feet still remaining where they were placed for the vaginal examination. This is done mainly for the purpose of unfolding the flexure of the thigh upon the abdomen, and to render the right inguinal region more accessible to the palpating hand. One hand only, applied externally, is required for the practice of palpation of the vermiform appendix. No assistance can be rendered by a finger introduced into the vagina, and very little assistance, and that only very occasionally, by a finger introduced into the rectum.

The examiner, standing at the patient's right, begins the search for the appendix by applying two, three or four fingers of his right hand, palmar surface downward, almost flatly upon the abdomen, at or near the umbilicus. While now he draws the examining fingers over the abdomen, in a straight line from the umbilicus to the anterior superior spine of the right ilium, he notices successively the character of the various structures as they come beneath and escape from the fingers passing over them. *In doing this, the pressure exerted must be deep enough to recognize distinctly, along the whole route traversed by the examining fingers, the resistant surfaces of the posterior abdominal wall and of the pelvic brim.* Only in this way can we positively feel the normal, or the but slightly enlarged appendix; pressure short of this must necessarily fail.

It is just here that the analogy between the conditions necessary for a successful examination of the pelvic viscera, and those obtaining in a *correct* palpation of the appendix vermiformis, become apparent. A bi-manual examination of the pelvic organs is the only one regarded as satisfactory at the present day; by a vaginal examination alone, or by an external examination alone, we are able to determine nothing of practical value. We need the fingers of one hand to afford a point of counter-pressure to

enable the palpating finger, or fingers, of the other hand to recognize the structures they meet. Just so in palpation of the vermiform appendix. Here the firm posterior wall of the abdomen at this point, the iliac fossa and the pelvic brim, form a good surface for counter-pressure.

Palpation with pressure short of reaching the posterior wall fails to give us any information of value; the soft and yielding structures simply glide away from the approaching finger. When, however, these same structures are compressed between the posterior abdominal wall and the examining fingers, they are recognized with a fair degree of distinctness. *Pressure deep enough to recognize distinctly the posterior abdominal wall, the pelvic brim and the structures lying between them and the examining finger, forms the whole secret of success in the practice of palpation of the vermiform appendix.*

Proceeding in this manner, the appendix is recognized as a more or less flattened, ribbon shaped structure, when quite normal, or as a more or less rounded and firm organ, of varying diameter, when its walls have been thickened by past or present inflammation. When it is the seat of inflammatory changes, the appendix vermiformis is always more or less sensitive on pressure; the normal appendix exhibits no special sensitiveness on being squeezed.

A good guide, in searching for the appendix, is formed by the right common and external iliac arteries, the pulsation of which can be easily and plainly felt. The line of these vessels corresponds to a surface line drawn from the left of the umbilicus to the middle of Poupart's ligament. The appendix is generally found almost immediately outside of these vessels. At its base it is separated from the vessels by a space of one-half to one inch, while lower down in its course it generally crosses very obliquely the line of the arteries.

Theoretically, two conditions mainly militate against the successful palpation of the appendix vermiformis after the method above described; practically, the difficulties offered by these two conditions amount to very little or nothing. I refer to the variable location of the appendix, and to the fact of its common deep situation behind the cæcum.

With the very rare exceptions of its situation *far* away from its usual site, the origin of the appendix vermiformis is practically

always found at what is known as McBurney's point. In fact, it is this constancy of the situation of the appendix which gives its practical value to McBurney's point in the diagnosis of appendicitis. The tenderness elicited by extremely localized pressure at McBurney's point is due to the presence beneath the finger of the inflamed appendix, a fact of which I have had abundant opportunity to satisfy myself.

The origin and first part of the appendix are practically, then, constant in situation, or so nearly so, as not to interfere materially with the working rule to first search for the appendix at McBurney's point. Any deviations from its usual course, starting from this point, can be usually recognized by the examining fingers. Only that part of the appendix, however, situated above the level of the pelvic brim can be distinctly recognized by the finger. When the appendix in its course dips down into the pelvis, that part of it lying below the pelvic brim is recognized, if at all, only with great difficulty. The surface for counter-pressure is lost below the iliac fossa.

The second condition, commonly assumed to render successful palpation of the appendix vermiformis impracticable, if not impossible, is a time-honored traditional myth. I refer to the assumed constant or common filling of the caput coli with fæcal matter. In my own experience this condition is *very* rare; in fact, I cannot recall a case during the period of over a year in which I have systematically practised palpation of the vermiform appendix in which I have found it. In quite a number of emergency cœliotomies, in which no opportunity was afforded for previous catharsis, I do not recollect ever to have found a fæcal impaction of the caput coli. Indeed, the systematic practice of palpation of the vermiform appendix after the method described, gives us, in addition, a great deal of information about the cæcum. We generally find it empty, collapsed upon itself from before backward, with the inner and outer borders distinctly recognizable by the fingers as they pass over them. The appendix, being in the large majority of all cases situated behind the cæcum, is, of course, palpated *through* the apposed anterior and posterior walls of the caput coli.

The second manner in which the study of the subject has been pursued has been by especially careful and critical palpation of the appendix in every case in which a cœliotomy was contem-

plated. When feasible, the appendix was then examined on the occasion of the cœliotomy, and its actual condition compared with that previously diagnosticated by palpation. With very rare exceptions we found our previous diagnosis of the position and size of the appendix correct.

In five cases in which cœliotomy was undertaken upon other indications, a diseased appendix, previously diagnosticated as such by palpation, was removed at the same time. The operations combined with the ecphyadectomy in these cases were: Salpingo-oophorectomy for chronic salpingo-oophoritis in the first; removal of two pus tubes in the second; salpingo-oophorectomy and ventral fixation of uterus combined with plastic operations, for total prolapsus of uterus and vagina in the third; total extirpation of the uterus for fibromata in the fourth and fifth.

The third method of study, which has been pursued during the past two months only, has been found exceedingly satisfactory and instructive. After completing the intra-abdominal operation or operations for which a cœliotomy is undertaken, and before closing the abdomen, the appendix is located by palpation from without. While the palpating finger presses the integuments down upon the appendix from without, thus marking its location as felt, and holding it down against the posterior abdominal wall, two fingers of the other hand are passed within the abdomen to verify or disprove the presence of the appendix immediately underneath the palpating outer finger. In the comparatively few tests thus made I have never failed to locate the appendix exactly and to diagnosticate correctly both its thickness and direction.

Finally, in a fourth series of three cases of chronic and one of acute appendicitis, the diagnosis was positively made by palpation and cœliotomy was performed *solely* for the purpose of removing the diseased appendix. These four cases are additional to the five already mentioned, when discussing the second method, in which the diseased appendix was removed as a secondary or additional measure when performing cœliotomy for other purposes. The acute and two of the chronic cases of appendicitis were successfully operated upon by myself. The third case I turned over to my colleague, Dr. G. F. Shrady, for operation, after making a diagnosis of chronic appendicitis by palpation.

In reference to this case Dr. Shrady writes : (*Medical Record*, January 6, 1894, page 2.)

"In this connection I may state that my attention has been called by Dr. Edebohls to the possibility of diagnosticating recurrent appendicitis by actually feeling the appendix through the abdominal wall, and demonstrating the cause of tenderness by direct pressure upon the organ. In one case I was able to do this, to recognize the appendix rolling under the fingers, to limit tenderness to direct pressure upon the process, and afterward to remove the organ by operation from that exact locality."

And again (ibid., page 23) in summing up the discussion upon his paper:

"He had expected some one would question the diagnosis of the appendix by touch through the abdominal walls, for he had not supposed this possible until it had been suggested to him to make steady pressure until resistance was encountered from the posterior walls, when, if the appendix were present in that locality, it might be felt as a cord rolling under the finger. Probably this would be possible only where the appendix was turgid and bulbous, as it was in one case in which he mapped out its location, and on cutting down found it directly under the mark made on the abdominal wall, about two inches and a quarter from the anterior superior spine, in line with the umbilicus."

It needs but a fair, unprejudiced trial of the method of palpation of the appendix vermiformis as described to convince others, as Dr. Shrady has been convinced, that it is possible to diagnosticate chronic appendicitis by palpation. The members of the house staff of St. Francis Hospital who have worked with me during the past year have, by repeated practice, become expert in this method of examination.

It is within the memory of possibly each one of you that not ten years ago the man who claimed to be able, as a rule, to recognize and map out by bi-manual examination the normal fallopian tubes was looked upon with suspicion. Where to-day is the gynecologist who cannot do this? And yet palpation of the appendix vermiformis, after a little practice, becomes quite as easy, if not easier, than palpation of the Fallopian tubes. Indeed I would lay it down as an axiom that successful palpation of the appendix vermiformis, except in cases of acute appendicitis, is possible in all female patients, in whom the absence of excessive stoutness, abnormal rigidity of abdominal walls or other more exceptional unfavorable conditions permits us to accurately define by bi-manual palpation normal sized Fallopian tubes.

The practical importance of palpation of the appendix vermiformis is apparent at a glance. Chronic appendicitis in the future

is to be diagnosticated, not on subjective symptoms, but on objective signs. Unless in cases of suspected chronic appendicitis, the surgeon can recognize by palpation the thickened appendix, and to limit tenderness on pressure to the diseased organ, he will not be justified in operating. A strict observance of this rule will prevent in future a not infrequent error of the past, that of performing a cœliotomy for appendicitis only to find the appendix perfectly healthy.

One broad rule governing the question of operative interference in appendicitis should be, not to operate in chronic cases unless you can feel the diseased appendix, nor in acute cases unless by palpation you can recognize either the diseased appendix or the presence of a tumor. Anæsthesia may be necessary in exceptional instances to decide the question.

Palpation of the appendix vermiformis possesses practical importance in the *early stages* of acute appendicitis at the time of operation, apart from its value as a diagnostic measure. In two instances in which I have operated early for acute appendicitis — in one on the second, in the other on the third day of illness — nothing but a small tumor could be felt in the right inguinal region before the patient was anæsthetized. After full anæsthesia, the inflamed, enlarged appendix could be distinctly felt in both cases. This enabled me to make the incision *directly over the diseased organ* and thus to remove the strangulated appendix with greater facility, and through a smaller opening, than if the incision had been made further away.

In conclusion I may remark that I have on two occasions forestalled an operation for supposed chronic appendicitis, proposed by eminent surgeons, by being able to recognize a normal appendix by palpation, and on this finding to advise against operation.

VIII. Discussion on Abdominal Surgery.

8. The Inch and a Half Incision and Week and a Half Confinement in Appendicitis.

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Sometimes when I am pleased to make a collection of easily verifiable data for the founding of an idea there is a lively play of sarcastic comment for a while until we all become charged alike, but never in my experience has more derision been provoked than when I took the ground that the appendix vermiformis should be removed as soon as appendicitis is discovered, and that deaths from appendicitis are unnecessary if the patient is within reach of the surgeon. Some of my personal friends in the yielding atmosphere of the postprandial cigar assured me in a confidential tone that my professional reputation was going to ruin on that question. So general was this expression of sentiment that it seemed at one time as though I must give the matter consideration, and retreat from my standpoint of rational deduction to allow prejudice another triumph. Soon, however, it was discovered that the advisers were taking the trouble to classify statistics, then they were seen at the back part of my audience at the Post-Graduate Medical School, and finally they came to the office again and said that as they had been subjects of chronic appendicitis all along it would please them to have their appendices out.

No important question in *fin de siecle* medicine has received more summary treatment than the one relating to the proper time for removal of an infected appendix. Ten years ago the word "appendicitis" had not been coined—or at least was not in use—and slight seismic disturbances were just beginning to obliterate the stratification of the terms "typhlitis," "perityphlitis" and "paratyphlitis." The authorities were still teaching that idiopathic peritonitis followed exposure to cold and to violent exercise, which was quite true, speaking synecdochically, but few had discovered Hamlet in the play. Finally they began to observe that we were all losing friends and acquaintances from infection of the

appendix and that such cases were extremely common. Within a short period of time I lost one of my house surgeons, one of my associates at a clinic, one of my beloved counsellors, one of my boyhood companions and several acquaintances, in all of whom appendicitis was found at too late operation or at necropsy. We began to understand that many of our cases of typhoid fever, idiopathic peritonitis, intestinal obstruction, bilious colic and various puzzling abdominal cases were in reality appendicitis.

Within the past five years I have removed fourteen diseased appendices for the patients of one venerable physician, who, in more than thirty years of active practice, had not previously made the diagnosis of appendicitis, and he is a representative physician who has probably had an average proportion of such cases in his clientele. I remember well a post-mortem examination in Germany by a celebrated anatomist, who, finding the cæcum covered thickly with gray lymph, made a record of the case as one of perityphlitis. He did not examine the appendix because it was partly hidden among adhesions and pus, and because it was only a little thing any way. Disease of the appendix, believed to be due to the entrance of foreign bodies into the lumen, had been recognized for a long time, but was supposed to be so rare that it was not looked for by most consultants. After we began to understand that appendicitis was of very common occurrence, there came an era of discussion as to the best method for discovering the presence of pus, in the intention of evacuating it when found. Later, surgeons tried to decide whether pus in appendicitis was extra or intra-peritoneal. Then, whether it was best to open the abscess simply, or whether the decomposing remains of the appendix should be sought for and removed. Little by little it was learned that the patient's chances for recovery were better when the appendix was removed before the pus had formed on either side of the peritoneum. Various waiting periods were next tried, in the hope of elaborating rules for guidance, but the question was found to be wedge-shaped with deaths at the waiting end, decreasing in inverse proportion until the point was reached — the point of operating immediately.

This year I described appendicitis as an infectious, exudative inflammation, the tendency of which was toward gradual destruction of the appendix rather than toward spontaneous recovery. Soon after the publication of that paper, physicians began to send

"cured" patients for me to see, but the patients gave histories of occasional twinges of pain, or of slight septic disturbances referable to the right inguinal region; and, when I removed their appendices, it was easily demonstrated that the infection was smouldering there, and that it would have blazed up again and again. Exudation necrosis of the lymphoid layer of the appendix was distinctly in progress in cases which were called "well," and swarms of bacteria were at work in the tissues.

It was not difficult to explain why a focus of infection remained, because the inner tube of the appendix, swollen with exudates in its tissues, was cutting off its own vascular supply, and proliferating endarteritis was in many cases gradually and surely occluding the larger arterial channels, in preparation for a sudden, extensive gangrene of the appendix. The adenoid layer which in the roomy colon would have acted as a protector was acting as a destroyer in the narrow appendix, because there was not room for it to swell, and it could not act as a strainer for bacteria when it was itself making food for the bacterium coli communis and for the various pyogenic streptococci and staphylococci.

A dangerous period for an appendicitis patient is when he feels almost perfectly well, for then he is likely to travel away from home, taking with him an appendix which may suddenly pop while he is thinking of something else.

The era of finding various extraneous bodies in the appendix came and went. It was common to find seed-like concrements in appendices, and a great many of these have been labeled "grape seeds" and "apple seeds," but the chemist undeceives us and I know of no authenic instance of a seed having been found in the appendix. It is sufficient to-day for us to know that bacteria gain entrance into the tissues of the appendix because that structure is easily bruised between a full cæcum and a hard pelvic wall, because other forms of bowel inflammation allow bacteria to cause strangulation of the inner tube of the appendix, and because concrements sometimes cause erosion of the mucosa of the appendix. We wondered why appendicitis occurred more often in men than in women until the frequent history of traumatism as a factor in the production of appendicitis showed us that men bruised the appendix more often because they are more often on horseback, and on the foot-ball field, and in the gymnasium, and where they are obliged to do heavy lifting. The appendix

balanced against the hard pelvic wall is a chip on the shoulder of nature.

In the evolution of the operation for removal of the infected appendix I now ask surgeons to accept as standard an abdominal incision one inch and a half in length which shall confine the patient to his room for one week and a half, and which shall leave an evanescent scar and no ventral hernia.

It so happens that I now have no ventral hernias, even after neglected cases, which had gone on to the stage of pus formation, and in which it was necessary to make a long incision. I did have three or four prospective hernias, but by recourse to a supplementary operation which will be described after two years of trial, the hernias have been nipped in their buds, and none of these patients now wear a truss.

The inch and a half incision is applicable in almost every case of appendicitis if the operation is done at a wise time. Even in old relapsing cases with very extensive adhesions I now usually succeed in getting the appendix out through the small incision, if the appendix is not far from its normal position. If the surgeons who doubt the practicability of this plan will kindly visit my clinic it will save much argument.

The incision lies in the right linea semilunaris and includes all structures of the abdominal wall. It is oblique enough to follow the normal trend of the external oblique aponeurosis, because that structure would be weakened by transverse or angular incision. The colon is distinguished by its longitudinal muscular bands, all of which end at the appendix, and which make it impossible for the surgeon to miss that structure in his search. The direction of the colon is determined by touching it with sodic chloride, and exciting reversed peristalsis.*

The mesentery of the appendix is ligated with fine cat gut. The base of the appendix is ligated with a very delicate strand of eye silk to prevent seepage of bowel contents into the wound. The stump of the appendix is buried with three Lembert sutures to avoid the dangers of perforation beneath a simple ligature.

* A note is at present going the rounds of the press to the effect that carbonate of sodium is useful for exciting reversed peristalsis, but I fear that this salt is dangerous. In experimental work with rabbits I found repeatedly that carbonate of sodium on touching the ileum produced permanent intussusception in less than forty-five seconds. The mechanism of the intussusception consisted in a spasm of the circular muscular fibres of the bowel, and the longitudinal fibres then proceeded to invaginate the contracted portion. The longitudinal muscular fibres later went into a condition of spasm but leaving intussuscepted bowel. A very little carbonate of sodium left upon the replaced colon in man might immediately produce intussusception on touching the ileum, and this complication would in all probability be mistaken for something else.

This accident would be expected to happen occasionally because of the nature of the original infection and of the tissues involved. It has caused the only two deaths that I have heard of in operations performed at a wise time. The operators were not responsible because this point had not then been developed in the technique of the operation.

In closing the wound of the abdominal wall it is best to unite margins of peritoneum and transversalis aponeurosis with one tier of cat-gut sutures. The internal oblique aponeurosis receives a separate tier, and so also does the external oblique aponeurosis, and the skin. The reason for taking so much pains in closing the wound is because the aponeuroses glide in different traction lines and because the scar must become entirely invisible to meet my standard.

On the day following the operation the patient almost always has troublesome gas pain, due to disturbance of the pelvic sympathetic nerves. On the eighth day he sits up in bed, on the ninth day he gets out of bed, and the tenth day he leaves his room and gradually resumes his occupation.

IX. Discussion on Abdominal Surgery.

9. Large Pseudo-Diverticulum of the Duodenum.

By LEWIS S. PILCHER M. D.,
BROOKLYN.

The case which I now report to this society I believe to be of great rarity, for I have been able to find in literature no report of any similar case.

As early as in 1761, Morgagni, as recorded in his *De Causis et Sedibus Morborum*, noted, in the body of a man, fifty-four years of age, the existence of a kind of diverticulum of the duodenum, situated at a spot distant two digits below the pylorus, where a loss of substance of the mucosa was evident, forming an orifice capable of admitting a finger leading into a cavity inclosed within the dilated outer coat. (Cooke, English Abridgment, vol. II, p. 414.)

In 1872, Roth, in the Archiv für pathologische Anatomie, Bd. 56, analyzes the literature of such diverticula up to that time, and adds accounts of five observations of his own. He concludes that they are acquired abnormalities, never contain in their walls all the intestinal coats, and that they occur only in advanced age, or as accompaniments to long-continued marasmus. They are round, cylindrical, or irregular in shape, and never attain a size larger than a pigeon's egg. For the most part they are collapsed and empty; less frequently, they are filled with the contents of the intestine. These diverticula have been found in the upper wall of the transverse portion of the duodenum, but much more frequently in the first or descending portion on its posterior inner wall adjoining the pancreas, where there is no peritoneal covering to the intestine.

It is obvious that ulcers of the duodenum, when situated on a portion of the gut not covered by peritoneum, may excite, as the result of their progress to the point of perforation, varying degrees of suppurative and necrotic changes in the periduodenal tissues thus opened up. Even limited abscess cavities connected with the duodenum must be, however, extremely rare, when the relative frequency of duodenal ulceration is considered; for, in my search of the literature of the subject, I have found but one reference to any occurrence of the kind, unless the small diverticula, already referred to, owe their origin to such a source.

The one reference I have found is in The Index Catalogue of the Library of the Surgeon General's office of the U. S. Army, and is entitled "Ulceration of the Duodenum; formation of a hepatico-diaphragmatic pouch." The case was published in the Western Journal of Medical and Physical Sciences, 1838, XI, pp. 510–514. I have, however, not been able, as yet, to examine it. With this preamble, I proceed to the relation of my case and the presentation of the specimen.

November 18, 1893, Frederick Bock, a boy seventeen years of age, was admitted to my service in the Methodist Episcopal hospital in Brooklyn, with the following history: His general health had been good up to a period about twelve weeks previous, when he began to suffer from pain in his abdomen, associated with tympanites and constipation. Irregular chills and fever, with emaciation, followed, with diffused tenderness over the whole abdomen. Finally, about two weeks before his admission to the hospital, a more severe pain with a manifest tumor, which was tender to touch, developed in the right inguinal region.

When admitted he was emaciated and anæmic; the abdomen was flat,

was somewhat tender and with rigid recti muscles, but with no discernible tumor. His temperature was 99.6 F.; pulse, 100, and respiration, 26. For some five days his temperature and pulse steadily declined to the normal point. The temperature then began to display a daily evening rise of from two to three degrees, and a dimly outlined tumor below the umbilicus, projecting to the right of the margin of the rectus muscle, could be felt.

The abdominal cavity was now opened by a median longitudinal incision below the umbilicus. Normal-looking intestines and peritoneum came into view. Pushing the mass of small intestines to the left and the ascending colon to the right, there was exposed behind the peritoneum, lying in front of the lumbar vertebræ and over the great vessels, and projecting forward into the abdominal cavity, a flattened, irregularly heart-shaped tumor, whose base was lost under the transverse colon above, while its apex overhung the brim of the pelvis below where it was adherent upon the right side to the last portion of the ileum and the adjacent portion of the cæcum. A sense of fluctuation within it was elicited by palpation, and while this examination was in progress its wall gave way on its presenting convexity sufficiently to permit a few drops of puriform fluid to ooze out. The opening thus made was enlarged; an ounce or two of brown puriform fluid escaped on the sponges; the finger, on introduction into the cavity, felt several small solid masses, which, on removal with the scoop, proved to be pieces of partly digested vegetable material; the cavity evidently did or had recently communicated with the intestinal tract high up; the exploring finger, passed upward, disappeared underneath the transverse colon, and did not reach the upper limit of the cavity. All its relations pointed to the duodenum as the origin of the abscess. From the first the general peritoneal cavity was protected by suitably placed sponges; now the abscess cavity was irrigated out, two drainage tubes were inserted and a suitable packing of iodoform gauze, placed so as to continue the isolation of the abscess opening and the drainage track from the general peritoneal cavity.

The patient rallied well from the operation; an abundant bilious discharge from the drainage tubes began at once to appear, and as soon as milk began to be administered, this also would escape from the drainage tube quickly after being swallowed. Infection of the general peritoneum was not prevented, and on the third day the patient died from the consequent peritonitis. Post-mortem dissection showed the tumor to be formed of a thick-walled sac, its cavity holding about six ounces, broadening at its upper part, across the posterior surface of which part was traceable a band of normal mucous membrane, about an inch in width, which was continuous at either lateral angle with the proper intestinal canal. At the right upper horn the descending portion of the duodenum opened directly into the sac, pouting into it in a manner resembling the termination of the ileum at the ileo-cæcal junction. Just within the intact duodenum could be demonstrated the opening into it of the common choledoch duct. The sac thus formed and related was a veritable interruption in the continuity of the intestinal canal, a large pocket or diverticulum, into which all the ingesta transmitted by the stomach, together with the bile, was discharged by the duodenum on the one side, and from which it had exit on the other side into the jejunum. Minute examination of the innermost layer of the sac wall showed it to

be composed purely of inflammatory connective tissue, except along the limited portion mentioned above, where the strip of mucous membrane was still visible. The line of demarcation between the mucous membrane and the inflammatory connective tissue lining was very sharp and well defined.

The etiology of such a condition as this must be a matter of interesting speculation. The most plausible theory is that which presupposes the occurrence of thrombosis of one of the duodenal arterioles, necrosis and digestion of the portion of the duodenal wall whose nutrition was thus impeded or destroyed, gradual invasion of the post-peritoneal connective tissue opened into by this process of ulceration, forming a sac with walls more or less thick, formed largely of inflammatory connective tissue. There was a manifest tendency of the limiting walls of the sac to thinning at certain points, from distension and absorption. This had threatened a rupture at its apex near the cæcum, before the admission of the patient to the hospital, but rupture had been prevented for the time by an adhesive peritonitis, which had here caused the ileum and cæcum to become adherent to it. This localized peritonitis had at that time occasioned symptoms simulating appendicitis. At the time of the operation it is evident that a rupture into the general peritoneal cavity was imminent at the point where rupture did occur, when it was exposed and under examination.

X. Discussion on Abdominal Surgery.

10. Three Successful Cholocystotomies for Gall-stones with Remarks Based on Six Cases.

By WILLIAM WATKYNS SEYMOUR, M. D.,
TROY.

Mrs. F. ———, twenty-seven years old, was attended by me in a lingering confinement, her first, October, 1892. Ten days later I was called to find her in agony from pain in the epigastrium, the liver border tender and the site of the gall-bladder especially so. There were no symptoms or physical signs referable to the uterus or its appendages. My diagnosis was gall-stones, which was incredulously received, but two days later the patient was intensely jaundiced, and the patient's mother, who had a similar attack when my patient was born, was convinced I was right. The attacks increased in frequency and severity until there was a perfect panic in

the household, especially as collapse was very marked in some of the last ones. In view of the frequency and severity of these paroxysms I advised operation. Finally, December 17, 1892, she had a terrific attack, and both patient and husband felt that another would prove fatal, and I was asked to operate the following day. A large room was speedily prepared and the next day, with the assistance of my friends, Drs. Morris, Gordinier, Buchanan and Webster I operated. Ether narcosis. Incision made from tip of the ninth rib downwards. The gall-bladder was found beneath the upper portion of the incision, but deep under the liver. Stones could be felt within it. Safeguarding the peritoneum with aseptic napkins the gall-bladder was aspirated, about an ounce of bile being removed, and then it was opened by an incision into the fundus. Sixteen stones were removed from the gall-bladder, cystic and common ducts, the gall-bladder being irrigated and then attached to the peritoneum and abdominal muscles by silk sutures, a rubber tube was introduced into the gall-bladder and the abdominal wound closed with interrupted silk-worm gut sutures. The improvement was rapid, although ether vomiting persisted twenty-four hours. At the end of forty-eight hours nourishment began to be taken in quantity. Flatus passed the second day, the bowels were moved the fourth day, when bile was found in the discharges for the first time in weeks. The drainage tube was removed the fifth day and the wound united by first intention. The last gall-bladder stitch was removed the fifth week and the wound entirely healed. The patient is now in perfect health and free from the dyspepsia and constipation from which she formerly suffered.

The second case in order of narration but third in point of time was a large-framed German woman, a widow fifty-nine years of age. For over ten years she had been subject to severe sudden attacks of pain which were ascribed to every thing but gall-stones, until she came under the care of my friend, Dr. H. C. Gordinier, who recognized gall-stones, as did Dr. Webster who attended her subsequently. From June, 1893, she suffered frequent severe attacks, and for several weeks prior to operation she required quite three grains of morphia a day to assuage the constant pain, and oft recurring paroxysms. After a consultation with her attendant, Dr. Gordinier, I advised operation because of the constantly increasing weakness, nausea and vomiting with exhausting pain. November 19, 1893, I operated in the kitchen of the patient with the assistance of Drs. Gordinier, Donald Buchanan and my student, Mr. Archibald Buchanan. The patient was greatly jaundiced and besides had pronounced organic heart disease, so ether was employed for narcosis. I made an incision parallel to the liver border so as to give easy access to the gall-bladder and duct. The belly was protected with aseptic napkins. The enlarged, inflamed and greatly thickened gall-bladder was incised between two forceps, and forty-two gall-stones the size of buckshot removed from gall-bladder, cystic and common ducts. After irrigating the gall-bladder it was stitched into the wound, a rubber tube inserted and the rest of the wound closed with silk-worm gut. Despite the large doses of morphine necessary before operation, the patient never afterward took a particle of anodyne. The bowels were moved the third day, flatus having passed the second day. Bile was found in the stools after the sixth day. Patient sat up the eighteenth day, and

now is in perfect health, apart from the heart affection, with wound perfectly closed.

CASE III.— Mrs. H ———, fifty-nine years of age, was referred to me when lecturing at the University of Vermont, May 16, 1893. Ten years before she began to suffer from intense colicky pains in the stomach. She was treated for indigestion, neuralgia of the stomach *et id omne genus* until she consulted the late Dr. Cram, of Ferrisburgh, Vt., who told her she had gall-stones. The attacks became more frequent and severe so that for three years preceding operation she was utterly incapacitated for labor of any kind. For six months the patient had been harassed by constant nausea, vomiting and pain, and by frequent atrocious paroxysms. The patient, always slight in frame, was emaciated. Her skin and eyes for five months had been deep yellow, her urine porter color and stools white. The heart was weak and at the base of the right lung were to be heard fine rales, but no dullness. Despite her feeble condition and the possibility of cancerous complications I advised operation as her only hope. To this she assented and on May 17, 1893, I operated before the 200 students of the University of Vermont in the amphitheatre of the Mary Fletcher Hospital. The patient took ether badly and twice I had to stop and perform artificial respiration, use strychnia, digitalis and oxygen freely and invert the patient. The liver was displaced downwards to within an inch of the umbilicus and I consequently made my incision parallel to its border but slightly above. The transverse colon was found intimately adherent to the whole liver border, requiring the utmost care to separate the dense adhesions, so that I could finally expose the under side of the liver. In these adhesions between colon and liver were very hard nut-sized masses of inflammatory tissue. No gall-bladder could be felt or seen, but deep down in the cavity I had made I could feel within a fold what I took to be gall-stones. Failing with Cabot's hook to incise the fold I opened it with a scissors under the guidance of touch. A large amount of bile escaped, but was caught in the protecting napkins. With Tait's scoop, forceps and Cabot's curette, I removed 150 calculi varying from buckshot to beech-nuts in size. The cystic duct was so dilated that my index finger easily passed into the common duct. Suturing the gall-bladder to the parietes was out of the question, so I passed a soft rubber tube into the hepatic duct through the gall-bladder and then threaded a glass tube over it into the gall-bladder, tamponing about the tube with aseptic gauze. The soft tube was displaced by an assistant, and removed, leaving the glass tube in the gall-bladder. Shock was very marked, but with strychnia, digitalis and oxygen the patient rallied well. Flatus was passed the second day, the bowels moved the third day and contained bile. The gauze was removed gradually, the glass tube on the ninth day and a short rubber tube substituted. The patient returned home in a few weeks with a fistulous opening which discharged freely at first, but finally gave no inconvenience. During the early autumn I heard from the patient that she was doing her housework and felt in good health apart from a slight cough. November 9, 1893, she had a severe pulmonary hemorrhage but was up the next day, later she had others and died November 19, 1893, from pulmonary hemorrhage. Her attendant, Dr. George P. Collins, says she had no symptoms referable to the gall-bladder and believed herself cured of it.

Despite the fact that gall-bladder surgery has at last conquered a place in therepautics, at least on a par with Carlsbad water and olive oil, there is still considerable diversity in the estimate of its various methods. As one who has been both operator and patient I entertain very pronounced views as to the relative merits of some operations. I wonld not, when my life was at stake, put myself in the hands of a gentleman who wrote me that he preferred to remove the gall-bladder, and I still feel that the excision of the gall-bladder has no field save in gangrene or malignant disease. Its removal certainly does not remove the laboratory in which the stones are formed. As to doing cholocystotomy in two stages, so enthusiastically advocated by Riedel, I regard it as a retrogression markedly circumscribing our field of action in the cases with complications which are not to be foreseen and certain to result in incomplete and discrediting operations. Riedel's own operations show this, as in several cases stones were extruded from the fistulæ, even weeks after operation ; a proof of incomplete work. The belly can by aseptic pads be thoroughly safeguarded against bile, and the operation in two stages has no advantages which the simple operation in one stage does not possess many times over. The incision which I employed in my first cases was the vertical incision from the tip of the ninth rib, the incision commonly employed by Tait and Mayo Robson. Twice I added a short arm, converting the incision into an inverted L, but after seeing the advantages which the incision parallel to the liver border gave in a very difficult case operated on by my friend Dr. John Homans, I concluded to employ it. This oblique incision gives the most complete access to the gall-bladder and ducts of any incision of which I know, at the same time admitting of perfect coaptation with a minimum of danger from hernia. Between cholocystotomy with suture of the viscus to the parietes as done by Tait and cholocystotomy with suture and dropping of the gall-bladder, leaving the peritoneum undrained, I believe the advantage to lie with Tait's operation. When the gall-bladder can be sutured well, I can not only see no objection, but an advantage, if the belly is safeguarded by temporary drainage and tamponade. If the stitches hold, the tube can be withdrawn in a very few days at least, and convalescence materially shortened. In the cases such as my third here reported, when it is impossible to bring the gall-bladder into the wound, or where we are obliged, after failing

in crushing or needling stones in the common duct, to excise them we can, according to the facility with which it can be done, either suture the opening safeguarding with drainage, or we may simply introduce a tube into the opening and surround the tube with gauze until the belly is shut off. In a case similar to my third case one might with Murphy's button do quickly a cholocystoenterostomy. At that time I was not familiar with Murphy's button, or I would have used it. In the cases where a fistula persists and proves detrimental to the patient's health, cholocystoenterostomy ought to be done, and the most rapid method seems to be Murphy's button. Whether time will show it to be as safe as its inventor thinks remains to be seen, but I think most will agree that his use of his button to side-track without removing stones obstructing the common duct is in view of the irritative effects of gall-stones, an abuse of an instrument which promises much in its proper field.

With all due respect for internal medicine the time has come to regard gall-stones as a surgical affection ; an affection which requires prompt intervention when the recurrences become at all frequent and severe. Neither Carlsbad water nor olive oil, nor chloroform and turpentine, can dissolve them when once formed, and to expose a patient to the many risks and unutterable tortures of many recurrences is downright wicked. Especially is this so when the mortality of the operations for the disease is extremely small.

XI. Discussion on Abdominal Surgery.

11 Intestinal Perforation in Strangulated Hernia.

By W. B. De GARMO, M. D.,
NEW YORK.

While the title of this paper restricts our discussion to only one point of a very extensive subject, even this one point can be discussed only in a general way before a scientific body whose program is crowded with papers, many of which may be of more interest to the general practitioner. Certainly few can be of more importance, as every medical man who has been confronted with a damaged intestine, always unexpectedly, will freely admit.

Then is the moment when the patient's life hangs upon the merest thread, and then the moment when the thread shall be severed or judiciously husbanded by the medical attendant, and the correctness of his judgment will depend largely upon the thought he has previously given to the subject. There is no time to look up this authority or that, nor to judge between the flowery and convincing statements of the one, and the equally positive statements, directly contrary, of the other.

These then are questions of vital importance for the consideration of a representative medical body, that a free comparison of views may be had, and that the members may go home with firmer convictions as to what should or should not be done when these grave emergencies arise. It is true that these conclusions may be in direct opposition to the reader of the paper, and still they are very liable to be approximately safe if they represent the judgment of a majority of those present who are qualified by experience or study to enter into the discussion. Another point that presents itself strongly to the mind of the speaker is, that it is far better to limit discussion, to a great extent at least, to the more simple methods of procedure that can be carried out by the average practitioner, rather than devote the time to those intricate operations that cannot be executed by any but the most experienced abdominal surgeon. If all cases of strangulated hernia received the prompt surgical attention that they are entitled to, then the discussion of the subject embraced in the title of this paper would be entirely unnecessary. Unfortunately, this much desired state of affairs cannot be realized as long as there remain uncertainties in diagnosis, popular prejudices against operations, or — even worse — hesitation on the part of the medical attendant as to the proper course to pursue in order to protect his patient against so disastrous an accident.

The strangulation which leads to the destructive process under consideration may come about gradually, or be immediate, according to the circumstances attending the case. In the first instance, a loop of bowel lying through the canal is moderately constricted commonly at the external ring. This constriction retards the return flow of venous blood. Progressive engorgement takes place until the blockade becomes so great as to shut off not only the return flow, but also the vessels of supply. Not only is the constricting band becoming tighter and tighter, but frequently by

the formation of gas in the interior of the bowel the pressure is increased. This pressure from within the gut frequently has a far greater influence upon subsequent events than generally recognized.

Immediate strangulation usually occurs as the result of forcing down suddenly a new loop of intestine or piece of omentum by the side of a protrusion already present, thereby blocking the canal to such an extent as to shut off at once all blood supply. In such cases the onset of the trouble is usually sudden and violent.

I feel that we should also give serious consideration to a third form of strangulation which is brought about in quite a different manner, and the true character of which is seldom recognized. It occurs in old irreducible hernias, and usually those of large size, where one or more long loops of bowel form the protruding mass. The bowel becomes adherent and otherwise crippled by bands traversing the sac. Eventually it loses its natural peristaltic movement and lies in the sac as a passive curved tube moderately constricted at its passage through the muscular wall of the abdomen; through this tube the intestinal contents must be forced by the normal action of the bowel within the abdominal cavity. The first symptom of serious trouble in these cases is that of obstinate and gradually increasing constipation, terminating in intestinal obstruction with all of its accompanying symptoms. It is usually in the last-named state that the physician sees it for the first time. He is very likely to recognize the site of the hernia as the point of obstruction. It is only in cases of extreme delay that perforation occurs in this class. In fact, the operator may find a condition of extreme engorgement only, and is surprised after doing a careful operation that the patient eventually dies. The cause of death is usually intestinal paralysis, both from the crippled condition of the bowel in its long residence outside of the body, and from the moderate degree of pressure which has been constantly across the neck of the loop. Attention is especially drawn to this group because of their essentially fatal character. They are, in many instances, fatal where the bowel is not perforated, and they are almost necessarily so if ulceration or gangrene occurs. Doubtless, if we could recognize these cases with certainty, and where it could be carried out with any degree of skill, resection of the entire loop would be in the interest of the patient.

It seems to the speaker important to recognize the three modes of strangulation briefly referred to, as having a direct bearing upon our prognosis as well as treatment of the damaged bowel, and that we should carefully weigh all of the circumstances attending the onset of the trouble, rather than be governed wholly by the appearance of the bowel as found upon operation.

As an illustration of this point, two cases within personal experience may be cited, one in a woman of eighty years with acute strangulation for only six hours, where the bowel was so badly discolored as to make the policy of its return at first doubtful, recovering promptly after methods of treatment to be mentioned later. Another woman of only forty-five with obscure symptoms of intestinal obstruction for ten days, was found to have a loop of bowel moderately congested and mechanically obstructed by sharp flexion upon itself, having slipped through an opening in adherent omentum. The bowel had no appearance of serious damage and still the woman died ten days later from returning obstruction due to paralysis of the loop which had been incarcerated.

There is no arbitrary classification that will apply to these cases, but for convenience we may speak of them as cases where upon opening the sac we find one of the following conditions:

1. Congestion.
2. Inflammation.
3. Laceration and perforation.
4. Gangrene.

Congestion.— In cutting down upon strangulated bowel we may find it œdematous, its coats thereby thickened, and of a bluish or deep red, or even dark brown color. The first question for consideration after cutting the stricture which has caused the trouble, is whether or not the bowel may be returned to the abdomen, without risk of subsequent perforation. If the strangulation is of recent origin, and no great violence has been resorted to in attempts at manual reduction, then, even though the appearance of the bowel is rather suspicious, we can usually so far improve its condition as to make its return perfectly safe.

From a fairly large personal experience in its use I am a strong advocate of the persistent application of hot water in the restoration of doubtful bowel. First of all be sure that the constriction has been freely divided, and the bowel has been drawn down far enough, so that the portion which has been under pressure can be

inspected. Accidents of perforation after the return of the bowel are largely due, the speaker believes, to lack of this precaution. Sterilized gauze (not bi-chloride) or a towel wrung out of water that has been boiled, and at a temperature that can be borne without discomfort to the hands, should be laid upon the parts and changed as often as necessary to retain an elevated temperature until a return toward normal color indicates improved circulation. I have seen some striking illustrations of the efficacy of this method, and believe that the time spent in carrying it out does not add to the risk of the operation; on the contrary, that application of heat to the bowel tends to diminish the amount of shock frequently attendant upon strangulated hernia.

It is well to remember that dark spots on the intestine may be due to small blood clots between its coats, or there may be clotted blood within the interior of the bowel, although the latter is believed to occur rarely, except in children. It has been an experience frequently repeated with the speaker, in infants who had suffered temporary strangulation, who, after reduction by manipulation, have passed blood with the next two or three stools.

Inflammation of bowel and sac will usually be found associated with exudation of lymph and with considerable fluid within the interior of the sac. By this lymph adhesions are quickly formed, not only between the surfaces of the bowel, but between its surface and the sides of the sac. Great care is necessary in separating these adhesions that the bowel is not lacerated, and at times it will be found advisable to cut out a part of the sac and return with the gut, after due precautions about thorough cleansing, and the use of the hot water to aid in restoring the bowel to its normal condition.

Here, again, must be repeated the caution about drawing the bowel down to a healthy portion and seeing that all adhesions are broken up before it is returned to the abdomen. Ulceration and perforation are also more liable to occur at the point of stricture than in the body of the loop.

The loop is usually found distended with gas, fluid, or both, and this brings up the question of tapping, in order to secure easier reduction. I can hardly think that any surgeon of experience would, at the present day, do otherwise than advise against this procedure, even with the finest hypodermic needle. It has been found that making a puncture point in an already partially

paralyzed intestine is quite a different thing from treating a healthy bowel in a like manner, and that it is inviting a breaking down of tissue at this point after the bowel is returned to its natural cavity. For the same reasons I look upon all forms of aspiration in attempted reduction of strangulated bowel with the greatest disfavor. Tension upon the loop will be relieved when the stricture at its neck and surrounding adhesions are freely divided.

Laceration and perforation. — These two words have reference to two quite different accidents. Laceration may, and frequently does, occur as the result of violent taxis, or in separating adhesions during the operation in otherwise fairly healthy bowel; while perforation in this sense implies a solution of continuity by a destructive process, and that this degeneration of tissue extends beyond the point visible to the eye. To lose sight of this latter fact is almost certain to result in disaster to the patient. In either case, we usually have to deal with a septic condition, due to extravasation of the contents of the bowel, as well as a more or less localized peritonitis, and it is advisable to wash out all foreign matter as carefully as possible with a weak bichloride solution, followed by boiled water. If the opening into the bowel is of large size, it is well to close the bowel on either side by means of temporary clamps. Clamps designed for the purpose are not a necessity. A piece of iodoform gauze, or a flat rubber band surrounding the bowel and held by forceps, will answer every purpose. These precautions having been attended to, release the bowel at its point of constriction, both that its damage here may be estimated, and that normal circulation may be as quickly reestablished as possible. Every care must be taken to prevent entrance of septic matter into the peritoneal cavity and surrounding tissues.

In closing rents in the intestinal canal, as in doing any work upon this viscera, there are a few points always to be borne in mind. 1st. That in bringing surfaces together where their union is intended it must always be serous membrane. 2d. It matters less what form of stitch this is accomplished by than that they are brought accurately together, with their surfaces in perfect apposition. 3d. Moderate scraping of the surfaces to be brought together to secure their earlier and more perfect agglutination (a point made prominent by Dr. Dawbarn). 4th. The absolute

cleanliness of the part after work is done upon it before returning to abdominal cavity.

Senn (*Journal Am. Med. Ass'n, Aug.* 12, '93) has called attention to the advisability of having the line of sutures run transversely to the long axis of the bowel, when possible, so as not to encroach so much upon its lumen. Linear lacerations must be closed, however, according to the direction in which they run, and this can usually be done with no serious impairment of the size of the tube. In most of this work, the Lembert suture, either interrupted or continuous (Dupuytren) will be found best; applied with a small round needle, and the material preferably of silk.

Perforation from degenerative process is so closely allied to gangrene that the greatest caution is necessary in dealing with it. The bowel may be friable for some distance from the ulcerated spot, and if sutures are placed in these structures they are quite likely to yield after the return of the intestine to the abdomen. Small spots may be turned into the lumen of the bowel and closed with the Lembert suture, as in the case of lacerations, but in the larger ones, or where the whole loop is under suspicion, the question becomes a very serious one. We have then to select between one of three methods: 1. Artificial anus; 2. Fæcal fistula; 3. Resection.

If we accept the conclusions drawn from the tables of Zeidler, Frank, Grant and others as final, we should resort to immediate resection in all cases where the intestine is seriously damaged, but the average practitioner is slow to adopt so radical a measure.

Owing to the eventually fatal character of artificial anus, aside from its disgusting features, many English surgeons favor the deliberate establishment of a fæcal fistula. Bennett strongly recommends (*Wm. H. Bennett, Clinical Lectures on Abdominal Hernia*, 108), where the damage is not too extensive, the returning of the bowel to the abdomen, placing a drainage tube of large calibre through the canal in contact with it, thus establishing a fæcal fistula. His experience in some apparently desperate and hopeless cases appears to justify the measure. I can scarcely bring myself to look upon it as good surgery, and should prefer to keep bowel already perforated or of uncertain character, outside the abdomen, if, for any reason, it was not deemed desirable to make an immediate resection. It is true that bowel left pro-

truding through the abdominal wall is not as favorably placed for prompt recovery as when in its natural cavity, but it is certainly much less liable to cause general septic peritonitis in this position, and can be very favorably placed if freed from all constrictions and suitably protected by antiseptic dressings.

If resection is advisable, what method can the average practitioner, with little experience in abdominal surgery, with limited resources, with few instruments, and sometimes no assistance, use. These cases cannot be sent to the expert, nor can the expert, in many instances, be brought to them. Resection is certainly brought to the extreme of simplicity by the use of the Murphy button, now so well known as to only need mention here (*New York Medical Record*, *Dec.* 10, 1892). It is only just to admit that although there are several very strong theoretical objections, it has had perhaps a better practical record up to this time, than any other one method. Certainly, one of its greatest faults for use in the cases under consideration is that it is quite liable *not* to be at hand when needed the most. I feel that we have one other method of resection which is fully as effectual, almost as easily done, and requiring only knife, scissors, and a needle and thread that could be found in any house, for its performance. I refer to the method of Maunsell, of New Zealand (*Am. Journal of Medical Sciences*, *March*, 1892), by which the bowel is joined end to end with serous surfaces in contact, all of its coats held firmly together with the stitches mostly inside the bowel. The damaged bowel having been cut away far enough back to insure healthy tissue, the ends are brought together by two temporary sutures, the first being at the mesentery and the second at the opposite or convex side of the bowel. The ends of these sutures are left long, and are tucked through a slit previously made in one end of the bowel back about one inch and a half from its cut end. By traction upon these threads which form the two sutures, and which pass out of the slit in the bowel, one end is inverted, turned mucous side out, and the other end is invaginated into it, thus presenting both cut ends at the temporary slit with their serous surfaces in apposition. Traction upon the threads by an assistant will bring them in convenient position for stitching. This should be done with a long, slender, round needle armed with silk. The needle should pass through both walls of the two cut ends of intestine, cross its lumen, and transfix both walls

on the opposite side. The thread can then be caught at the point crossing the lumen of the bowel drawn out to a sufficient length and cut, thus forming two stitches with one passage of the needle. In this manner, the time required to stitch the ends together is reduced nearly, if not quite, one-half. Maunsell directs that the united edges of the bowel be painted with Wolfler's mixtures and dusted with iodoform, but while this may be advisable, it is shown that it is not a necessity by the very interesting case reported by Dr. Wiggin in the New York Medical Journal, January 20, 1894. The invaginated bowel is now drawn out of the temporary slit and the latter closed.

DISCUSSION.

Dr. H. A. Kelly, of Baltimore: I would complain that the title of Dr. Price's paper is not well chosen, for to my mind in most of the "disputed points" cited, the disputation exists in the mind of the writer. As to the changes in technique observable in the practice of men who base their methods upon experimental studies in the operating room and the bacteriological laboratory, it can only be necessary to point out to intelligent men that nothing but a superficial observation confuses the changes characteristic of scientific progress along definite lines with those changes which are born of uncertainty.

The drainage question is a vital one. These are my own dogmas as a teacher relative to this important subject. Drainage in abdominal pelvic surgery is always a confession either of imperfect or of bad surgery. Drainage may be forced upon the best operator by a septic infection which he cannot entirely eliminate in the course of the operation. Again the surgeon may be forced to drain on account of widespread capillary hemorrhage which he is unable to check. Extensive bowel surgery too may compel him to drain in order to provide for possible imperfections in some part of his work. Such are the conditions under which the surgeon's work is necessarily less complete than he would wish it. The use of a drain, however, in a case free from such complications as those just cited, is a confession of bad surgical work, for under other circumstances it implies that something has been introduced from the outside during the operation which calls for a drain to provide for its escape. The drain is naturally and properly more frequently used by the young operator, but it should be his constant aim to dispense with it ultimately in all cases except those above mentioned. The

young surgeon will gradually reach this vantage ground as his confidence in his technique grows with experience. The drainage tube is dangerous for two reasons, if not speedly removed it leaves a weak point in the abdominal wall for the formation of a hernia; it also forms an avenue for the entrance of sepsis from the outside. This latter fact has been abundantly demonstrated by culture studies conducted in my wards at the Johns Hopkins Hospital. A further objection to the *glass tube* as a means of drainage is that it is inefficient. I have seen death occur and found septic pools in the pelvis in spite of the tube. Lest I shall be accused of one-sidedness, I will cite my first Gynecological Fasciculus, published in 1891, where you will find the most elaborate consideration of the use of the glass drain which has ever yet appeared in any language, as evidence of my work in this line.

I find Dr. Ross' paper full of interesting and valuable suggestions, but unfortunately in a hurried discussion one has but time to emphasize points of difference. I object to what he there says about surrounding atmospheric influences. It is the tendency of modern surgery to attribute less and less importance to this source of contamination under the conditions as they exist in our operating rooms. My own experience and experiments lead me to say emphatically that in nineteen cases out of twenty where sepsis creeps in, it is from the fingers and finger-nails of operator or assistants.

I wish, finally, to dwell upon the importance of a more scientific analysis of our pus cases in the operating room and during the progress of the operation. It has long been my plan when any pus is found in the abdomen to detail an assistant at once to make a cover glass preparation for immediate examination under the microscope, and to take cultures. If the microscope shows that there are no organisms, or that organisms are sparse, or that the gonococcus is present, I do not hesitate to cleanse out the abdomen and then close up the wound without drainage. On the other hand, if staphylococci or streptococci are present in numbers sufficient to be easily found, I would employ a gauze drain in all cases in which the peritoneum had been contaminated by the escape of pus.

In the treatment of pelvic abscesses I not infrequently open per vaginam, and cure the cases without removing the adherent structures. I have in several instances, upon opening the abdomen and finding the adhesions so universal and so vascular that enucleation necessarily meant extensive injury to the bowel, turned to the vaginal route, and, guided by one hand still in the abdomen,

opened up and drained the abscess cavity or cavities through the vaginal vault.

Dr. Arpad G. Gerster, of New York: Although I am a general surgeon, nevertheless the subject brought before the society has interested me very much. Dr. Price dwells in detail in his paper on disputed points in the treatment of pelvic surgery. It struck me, as my predecessor stated, that there were no points raised that anybody disputed. I don't think anyone will dispute the importance of the main point raised by Dr. Price, that pus is to be evacuated. No one of an established professional or scientific reputation would dare state that pus should be retained and conserved in the body. I protest too, in the name of the profession, against the statement that it is usual to subject the rich patient to the rest cure, but if poor he must be operated on. I believe that those who maintain a conservative position, and at times retard the too prevalent tendency to indiscriminate operating, fill a very important office in balancing and securing the even progress of surgery. The position of those who insist upon the greatest endeavor being employed in reaching a correct diagnosis before the abdominal cavity is opened is unassailable, and this position is not shaken by the practice taken up very enthusiastically by a number of operators, that the diagnosis can be made with the knife. These conservative men perform a necessary restraining function which is honorable, should be respected, and should not subject the sincerity of their motives to suspicion.

Regarding the advisability of the extirpation of pus sacs in preference to simple drainage, Dr. Kelly has represented very correctly the position of the speaker.

The question of statistics has been also mentioned. Statistics are valued too highly by some and discredited too much by others, yet both of these positions may be correct or wrong. There are men whose statements, be they general or specific, will be received by all of us with great respect, because we know the men who speak do not deceive themselves, are strict disciplinarians of themselves, are good observers, cool and just weighers of evidence, therefore trustworthy. On the other hand there are men whose enthusiasm mars their discretion, and these are less trustworthy; their statistics we must sift very carefully before accepting their conclusions. Here is the difference between statistics and statistics.

As regards Dr. Ross' paper, I believe he has overestimated the importance of aerial infection. My hospital experience has shown that, although the dangers of aerial infection remain unchanged all the year round, the most marked and most remarkable differ-

ence in the action of wounds has been observed on the change of assistants, and this element, which we are all apt to disregard, is the personal equation in regard to cleanliness of the man who is to carry out the little details of the antiseptic plan in the hospital. The detection of these personal factors in producing suppuration is one of the most difficult things. In most instances I have been able to find gross faults of manipulation responsible for the mischief which produced the contact infection through the hands of assistants or nurses or even myself, of which we had no previous knowledge. I have come to this point, that when I see a wound that ought to heal by first intention, looking angry, and the patient in a high fever and in a septic condition, I always say there must have been some infection carried into the wound by ourselves. The more strictly I insist upon this principle, the better my results are apt to be.

As regards the question of purgatives, I can only indorse the opinion that has been expressed, that the patient whose peritoneum has once been invaded by an infectious agent of certain intensity, whose intestines have become paralyzed, cannot recover even if you flood his stomach with saline laxatives.

Dr. Charles P. Noble, of Philadelphia: With reference to drainage, I find myself entirely in accord with Dr. Price; that drainage is most valuable I am quite certain. As the question of statistics has been raised, a very careful examination of the statistics of those men who believe that drainage is a valuable thing as compared with those who do not so believe, will show that their mortality is not half so high. If this be a fact, the final sense of the profession will be that we ought to employ it. I am not at all in sympathy with the theory that the man who uses drainage confesses that he has done bad work; he has had a bad case. No one would advocate the use of drains in simple ovariotomy, where the peritoneal cavity is in a healthy condition; but when tumors are extensively adherent, when the peritoneal cavity is largely denuded, where sepsis is unquestionably present, in such cases I cannot advocate drainage too strongly. I have personally watched more than one hundred drainage tubes; I have never seen a patient injured by a drainage tube; I am satisfied that I have seen many lives saved.

With reference to the question whether we should remove the pus sacs or drain by the vagina, I think both are proper. Where the condition of the patient will at all permit, it is better to make a clean enucleation and leave the patient without any sequestrum in the pelvis. But we all meet with cases so debilitated when coming

under observation that they would die from shock if we enucleated these sacs, and in such cases drainage is a good temporary expedient.

With reference to Dr. Ross' paper, which I listened to with great interest, it seems to me that the influence of pus in causing peritonitis depends not so much on its situation as on the nature of the pus. Very much pus in the pelvis is sterile; whatever germs have been present have long since died. Such pus, if fairly cleaned out, the peritoneum can take care of. As to the effect of the atmosphere on the success of the operation, I am satisfied that it is not so much the atmosphere as some slip either in the cleansing of the fingers, instruments or ligatures.

In reference to Dr. Buckmaster's paper, there is no question that hemorrhage occurs after abdominal operations just as after other operations. I have had four hemorrhages after abdominal operations, one of which was fatal. The cause of the hemorrhage unquestionably is that the neck of the ovary has been torn and the fact not recognized at the time. The ligature has not slipped but has not included all the branches of the ovarian artery. Hemorrhage takes place when tension is removed by dropping of the stump. Dr. Buckmaster raised one point which struck me as being decidedly heretical, namely, that one is not able to recognize the fact that hemorrhage is taking place. There are two ways of recognizing whether it is or not. One is by putting in a drainage tube, which is one undoubted argument in favor of using the drainage tube. At other times the diagnosis can be made by the very rapid development of the symptoms of shock. I am satisfied that in almost all cases of internal hemorrhage, restlessness, rapid pulse, pallor, syncope and other evidence of hemorrhage make their appearance.

Dr. Joseph Price, of Philadelphia: These subjects are worthy of lengthened debate, that we may arrive at uniform consensus of opinion as to how, when and by whom these operations should be done, with a view to relieve human suffering and save human lives. There is a feeble class of patients suffering from pyaemia incident to carrying a quantity of pus that should have been removed early, who do not bear surgery well, but increase our mortality. Age, environment and vigor of patients have their effect on the results of operation. Above the age of forty they are bad subjects; their stamina and vitality is low. Your mortality increases above the age of forty and lessens below forty in all suppurative forms of pelvic disease. Active people bear the operation well, sluggish and indolent people bear the operation badly. The colored race bear operation much better than the white.

How shall we operate ? I would very much rather trust the general surgeon, with large and varied experience, to do abdominal section, than one of our new school of gynecology, who are beginners without general surgical training or experience. Remember while discussing the importance of taking only the advanced position and a lower mortality, that it was the old school gynecologist, who had served an apprenticeship in general surgery, that gave us this dignity and gave us this advanced position. Work has been done by the surgeon among the poor in alleys and courts, with few of the modern appliances, equal to any attained in the best appointed hospitals, and while it is no longer a question that if you can do it with an ideal environment, this should be secured; still, if you cannot, do the best you can for your patient. It should be done by a disciplined man, the man with the operative surgeon's knowledge and an especial apprenticeship in abdominal surgery.

Purgatives have been used unfortunately at the wrong end. All patients should be prepared thoroughly for the operation by thorough purgation. It is exceptional to have any distention in empty viscera. You cannot have it in a well-prepared patient provided the surgery has been good.

Hemorrhage is usually due to bad surgery, rude manipulation, imperfect materials or badly placed and improperly selected ligatures. What Dr. Noble has stated in regard to the value of the tube is true, the tube is the sentinel. Quite a number of the patients that die of hemorrhages are put down as dying from shock, collapse, suppression of the urine, heart clot, etc. You can save the bleeding cases with the tube, you rarely save them without a tube, nor are they recognized in all cases. Drainage is good surgery. Unsatisfactory, dirty, filthy cases should all be douched and drained. The man that flushes usually has the best results, there is no disputing this fact. It is nice enough to talk about science, but we want science that saves life and relieves suffering early, we want more pathology and more accurate diagnosis.

In regard to pyæmia, the man that has not learned how to do surgery without pyæmia or sepsis has a good deal to learn. Again, the general or special surgeon who has not learned how to manage his patients without opium has omitted something important in his education. All surgery should be clean, simple, rapid and direct, materials should be but few, clean and well placed ligatures of pure fine silk, the cleanest and safest material known.

Dr. J. F. W. Ross, of Toronto: A great many have been under the misapprehension that if septic poisons have been introduced,

they can be got rid of by purgation. I intended, in my paper, to convey the opinion that purgatives given with this view after operation are useless.

Regarding the operating rooms, I am satisfied that there is something in the air of the building in which I do the operations which has an influence upon their result. When at one time I had post-mortem examinations conducted in the basement of the building in which I was operating, the operations clearly showed the ill effect. The sponges and instruments I carried with me and used in other hospitals and had no difficulty there. I am satisfied it is not wise to operate too early after cancer, for the simple reason that in these cases the germs are extremely active.

Regarding Dr. Price's remarks about court and alley work, I consider that an operation done in a small building where the air is ample and pure gives better results than in a hospital where you have all diseases such as erysipelas and suppurating cases. In hospitals we have septic cases, in small houses we do not.

Dr. HERMAN MYNTER, of Buffalo: It is my experience that perforative appendicitis with septic peritonitis is fatal, but the country physicians who take their cue from these reported cases, are apt to get the idea that, with proper surgical treatment, such cases recover. We have statistics of many cases that are successful, but I have not seen any of fatal cases. Do these gentlemen never meet with cases that terminate fatally; what kind of cures are these reported; what results do you generally get in gangrenous appendicitis and septic peritonitis, when they come into your hospitals as they do into mine, after the disease has lasted five or six days? All over the country at least nine out of ten of these cases die: if yours in New York get well, how do you do it? If there is a way to save them we want to know it.

Dr. H. S. DURAND, of Rochester: There is no question but that such cases die; at the same time intelligent effort may be made to save even the worst. He related a case of appendicitis in which operation was done the day after it was recognized, finding perforation and the abdominal cavity full of a thin bad fluid. The cavity was washed out with sterilized water and peroxide of hydrogen solution. The man came out of his ether well, never had any pain after, and on the third day felt well enough to get up and walk about the room.

Dr. WILLY MEYER, of New York: There is no New York surgeon who claims to save every case of appendicitis. I do not know whether we have so much better results than the country practition-

ers; if we have I believe it is owing to the fact that New York is a large city where the surgeons can be commanded within a very short time, and where discussions on this extremely important disease in surgical societies have trained the general practitioner to call a surgeon at once as soon as he is aware of, or suspicious of having a case of appendicitis on his hands. That of course cannot be done in the country at large; it can be done in large cities only. Dr. Mynter speaks of cases of acute perforating appendicitis being allowed to go on for two or three days before coming under the care of a surgeon; all such cases are hopeless; frequently they are without hope after six hours. No surgeon is likely to save every case of acute appendicitis. He will certainly save the greatest number of patients if he operates without hesitation within the first hours after the onset of the threatening symptoms.

Dr. Robert T. Morris, of New York: Dr. Mynter has asked why our results are so good, if they are. No credit is due to us except for the choice of time for doing the operation. The credit is due to the physicians on whom I depend for the cases, and who are ashamed to have me find pus in their cases of appendicitis, knowing how unfair that would be to the surgeon and patient. I am perfectly willing to admit the fact that many patients must die, but the important thing is to get the cases sent early and then there will be practically no deaths. I do save most of these cases of gangrenous appendicitis. They are recorded in such a way that I would be very glad to have you look them up. Cases are living to-day who have had general suppurative peritionitis, others with large abscesses and gangrene of the bowel. I realize that a good many of them die, but the technique which is employed to-day will save most of them. We must wash out the abdominal cavities with normal saline solution, we must sterilize with preoxide of hydrogen, and we must not use the drainage tube or a packing of iodoform gauze. The single small drainage wick is the thing to use.

Dr. G. M. Edebohls, of New York: As, in preparing my paper, I have had occasion to go over all of my cases of the past year, so that my work is fresh in memory, I happen to be in a position to answer, in a degree, Dr. Mynter's question, and my experience, limited though it be, may perhaps give some idea of what can be accomplished in some of the worst of these cases. I have removed ten appendices vermiformes during the past year. Of these, five were removed in the course of cœliotomies performed for other conditions, in three of which the diseased appendix was recognized by palpation before operation. Of the remaining five, two were cases of what I prefer to call chronic appendicitis — some call them relapsing or recur-

rent appendicitis — both of which were readily diagnosed by palpation, i. e., by feeling the enlarged and tender appendix, and limiting the tenderness on pressure *exactly* to the diseased organ, and the operation was undertaken and the appendix removed on the diagnosis thus made. A third case of chronic appendicitis in which I made the diagnosis by palpation I transferred to my colleague, Dr. G. F. Shrady, who removed the diseased appendix on that diagnosis after first satisfying himself of its correctness. These are the cases to which Dr. Morris' inch-and-a-half incision applies. Lastly come three cases of acute appendicitis. Two of these occurred in girls in their teens, the third to a man of 28. The first of them was operated upon sixty-three hours after the beginning of the attack; a gangrenous appendix as thick and large as my thumb was removed. The interior of the appendix was in direct and free communication with the peritoneal cavity, the gangrenous appendical wall having fallen away in several places. The adjacent peritoneal surfaces were smeared with pus, but there were no adhesions to limit the spread of infection. The patient made a good recovery. In the second case the alertness of the family physician enabled me to operate thirty-four hours after the beginning of the attack and within six hours after perforation. We found a partially gangrenous appendix, with a large perforation at its middle portion through which fluid fæces were, under our eyes, escaping into the *free* peritoneal cavity. Sixty grammes of mixed serum and fæces were removed from the peritoneal cavity, the appendix was ablated and the patient recovered both from the operation and from a severe pneumonia, which occurred on the sixth day. Both of these cases I have recorded in detail elsewhere. (New York Journal of Gynecology, February, 1894.) The third case, occurring in a man of 28, I operated upon within the past two weeks. The operation was performed seventy-two hours after the incipiency of the acute attack, the patient's second within a year. We found and removed an adherent appendix, almost black from intense congestion; no perforation and no evidences of peritonitis. It was a perfectly smooth and easy case in every way, and the prognosis immediately after operation seemed the most favorable possible; yet the patient died forty-two hours after operation of heart failure, due to fatty degeneration of that organ. Thus, of three cases of acute appendicitis, two very bad ones, with perforation and well-started peritonitis, got well; the third, without perforation and without peritonitis, succumbed. I may add that in the first of the acute cases the enlarged and diseased appendix could be readily palpated on the day preceding operation.

In the two other acute cases the presence of a tumor was all that could be recognized, owing to excessive tympanites and tension of the abdominal walls. As soon, however, as the patient was relaxed by anæsthesia, and before beginning the operation, the diseased appendix could be readily palpated. As a result of such palpation we were enabled to make the incision *directly* over the diseased organ, thus minimizing the length of incision required and facilitating operative procedures. Such information from palpation can, in acute cases of appendicitis, only be obtained in the *early* stages of the attack.

Dr. JOSEPH D. BRYANT, of New York: There is no condition in the course of the surgery that I regard as deserving of more attention, and to which one approaches with greater degree of deference than to a case of perforative appendicitis. I am willing to say, although I say it with much regret, that I have never seen a case of perforative appendicitis attended by general septic peritonitis recover; and I desire also to say that other gentlemen who have had experience and opportunity even larger than my own express themselves similarly. Further and in reference to those who report a series of such cases as recovering, I am forced to believe that either I myself am sadly deficient in the knowledge of the proper means to employ in these cases, or the gentlemen who thus report them have overlooked important pathological conditions, and at all events the standard of judgment as to the extent and nature of the complicating inflammation in these cases is sadly at variance.

Dr. ALBERT VANDER VEER, of Albany: Dr. Kelly discusses clearly a subject with which he is thoroughly familiar, and it is pleasant to observe his candor in the statements he makes in regard to the results of his experimental studies in the operating room, the bacteriological laboratory, and the conclusions reached that necessarily from time to time lead him to a change of treatment heretofore based upon a practical experience, yet following out with honesty his convictions. I agree with him in reference to his conclusions regarding the use of the drainage tube, not to the extent, however, that it may be called a confession of bad surgical work. I think we must be careful not to expect too much from the drainage tube, but I am not yet willing to dispense with the glass drainage tube as a mechanical contrivance for drainage. I have always been greatly impressed with the capillary drainage by means of gauze, and make use of it through the glass tube itself with satisfactory results, but, beyond a doubt, we use drainage less and less as our experience increases. I quite agree with him that we should not give up the vaginal route of drainage entirely. No

form of drainage will in itself change septic conditions into an aseptic state. When pus has escaped into the peritoneal cavity we have then one of the greatest trials met with in abdominal surgery to encounter, and it is here that I have much confidence in a thorough washing of the peritoneal cavity, if possible leaving no foci of staphylococci or streptococci; and here I agree with Dr. Kelly that gauze drainage is of immense value.

I have much admiration for Dr. Gerster's straightforward, honest expressions in regard to the treatment of wounds. It is our change of assistants, as stated by him, that not infrequently sets every thing going wrong. I would rather, were it possible, work with my head nurse, who has entire charge of all the surgical dressings from one year's end to the other, than with new members of the house staff, who are not always thoroughly careful and honest in the preparation of their hands, finger-nails, etc., before handling instruments or making ready for an operation, but these are conditions we cannot always overcome, much as we may regret it.

I heartily agree with Dr. Noble in his one sentence — that he has never seen a patient injured by the drainage tube, and that he has seen many lives saved. I consider it the very best sentinel we have to warn us in regard to internal hemorrhage that may take place after our operation, together with the other symptoms that are associated with this anxious condition of our patient.

Dr. Buckmaster has given us a most admirable paper. Some few years ago I lost two patients from hemorrhage, both of them being exceedingly simple cases as regards the operation, but in one I was quite certain there was a rent in the vein, due to a twisted pedicle that did not show itself at the time of the operation, and that in the other there was a receding of the vessels from the ligature itself, when tension was relieved, causing the fatal condition. We must be prepared for hemorrhage in our abdominal work, as is the case with all surgical interference elsewhere about the body. The difficulty of reaching it, the danger of exhausting our patient in our efforts, makes it more anxious than when we meet with hemorrhage immediately from wounds about the body elsewhere, and for that very reason we should be more than careful in studying these cases to make sure that no bleeding is to take place after the abdomen has been closed.

Dr. Price gives us some solid nuggets to consider, in language not to be mistaken. I was greatly impressed with his observation that the mortality in cases of abdominal work must increase above the age of forty, particularly in suppurative forms of pelvic disease. I am glad to have heard from him such careful observations

as to the temperament and make-up of the patient relative to their immediate recovery. I think we can all agree with him that the patient who goes upon the operating table with discouragement in her every movement, is not the one to bear a severe operation well. The cheerful person receives, as it were, a tonic in the good news, when the operation is over, that all is done and that she is to recover ; whereas the doubtful one will scarcely give heed to the encouraging words offered her.

I was greatly impressed with his views relative to the use of purgatives. Beyond a doubt they should be used thoroughly before the operation is to commence, and then again the intestinal tract should have a day or two in which to quiet down and recover between the time of the use of the purgative and the day of the operation. He also makes a strong point in regard to the cases of hemorrhage ; these patients can be saved with the tube — you rarely see them saved without the tube. I quite agree with him that those of us who have not learned to manage our patients without the use of opium, have omitted something important in our education, but, at the same time, I am frank to say that now and then I have seen a case in which I am quite sure the hypodermic injection of morphia did no harm. There are occasionally cases in which it is absolutely necessary to administer morphia, during the first twenty-four hours after the operation, in order to obtain the needed rest. I take great pleasure in indorsing all that he says about clean, simple, rapid surgery, using as few ligatures within the peritoneal cavity as can be avoided, and of the purest, best silk.

It seems to me that Dr. Ross has given us one of the best papers in this grand discussion. I am not willing to be placed among those who disagree with him in reference to the condition of the operating room, and the room in which the patient is placed. I am sure there are dangers of the nature to which he has referred, particularly when there are many patients in the room or in the building, undergoing the same kind of operation. I think his views in regard to the possibility of getting rid of septic poisons by purgation sound, and to be followed. His paper bears evidence of much hard work, of careful preparation and a conscientious presentation of the subject. It bears the marks of a man who is thoroughly honest, and careful in the investigation and presentation of results.

Dr. Mynter strikes the key-note in the subject that is now justly claiming the attention of the general practitioner and the operating surgeon. There is certainly much divergence of opinion as to the possibility of recoveries in these cases of acute perforative appen-

dicitis, with septic peritonitis. I quite agree with him, and with Drs. Bryant and Richardson, that these are necessarily our fatal cases, and though I admire much Dr. Morris's enthusiastic and earnest presentation of the subject, and respect greatly a case reported as done by Dr. Durand, yet we cannot deny that the mortality has been of the saddest.

Dr. Meyer comes near to the views that I have expressed on several occasions, that the sooner the surgeon can be reached in these cases of acute perforative appendicitis in connection with the attending physician, and if an operation is to be done at all, to be done early, the better will our statistics be.

I have great respect for Dr. Morris's method of making his incision, and also his views receive my indorsement that these cases must be reached early by the surgeon. I have had no experience with the single, small drainage wick to which he refers. I have used a very small strip of iodoform gauze within a bag, or without, and have no reason to regret it in my cases of septic suppurative peritonitis, resulting from a gangrenous appendix.

I am very sorry that I was not able to listen carefully to Dr. Edebohl's paper, but which I shall take great pleasure in reading and studying later on.

I was delighted with Dr. Bryant's paper. It brought out a statement of facts that must help greatly in the clearing up of our unusual cases, and that must ever be borne in mind in opening the abdominal cavity, with a view to operation upon the appendix. Much credit and honor is due him for the patient manner in which he has investigated this part of the subject.

Dr. Allen has given us a report of some very rare cases in abdominal surgery, which illustrates fully his careful, close observation, and his thoroughness as an operating surgeon. They will add very materially to the literature of the subject. The paper will undoubtedly, when published, receive that commendation and approval that it so richly merits.

When asked by our worthy president to prepare a discussion on abdominal surgery I felt some reluctance in undertaking it, fearing that there might not be that interest manifested in the presentation of papers that has been exhibited other years, but I think we are all ready to join in rendering our thanks to the gentlemen who have so faithfully labored in the preparation of papers, and in the discussion, making this part of the meeting so thoroughly successful.

The subject of appendicitis has been thoroughly gone over, and must result in good to those who read the papers and the discus-

sions upon this subject. To the general practitioner especially it will be of great value, for, as has been so often stated, the early diagnosis of this pathological condition rests with them in a large number of cases. The public expects much of us in the way of relief in these lesions. Much has been published to which they have had access, and while I am certain that in some respects the hopes held out and encouragement offered in cases of perforative appendicitis will prove delusive, yet it is evident that an early, prompt operation is the only hope for patients in this form of pathological changes about the appendix.

I regret exceedingly that want of time and a forced illness has prevented me from completing my paper as I had hoped to be able to do, on the subject of "The Unexpected in Abdominal Surgery." There are many points to be considered in these operations. It is comforting to read the literature on the subject up to date, and see the evidences that are plainly to be noted of the few errors that are made in the diagnosis of abdominal cases compared with the reports presented ten years ago. With others who have spoken on this subject I can only add my regrets that time does not permit us to extend the discussion further. As a society we owe a vote of thanks to the gentlemen, not only from our own State, but from other States, who have contributed so much rich material.

The discussion on Abdominal Surgery was arranged for the meeting by Dr. Vander Veer. In closing the discussion he moved a vote of thanks to those who had come from outside of the society to participate in it, which was carried.

XII. Discussion on Menstruation and its Abnormalities.

1. Introduction to the Discussion, with Remarks Concerning Normal Menstruation.

By ANDREW F. CURRIER, M. D.,
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In introducing this familiar subject in the form of a debate before this learned society, my only apology, if apology were essential, is its every-day importance. Whether we are general practitioners or so-called specialists, there are few morbid conditions which we are called upon to investigate in women between the periods of puberty and the menopause, in which the influence of

menstruation may not enter as an important factor. Particularly in recent years, which have seen the wonderful development of the art of abdominal surgery, have the bearings of this function upon the general economy of the individual been the subject of much reflection and discussion, and not a little light has been contributed by the workers in this field. I deem myself fortunate in being honored as usher or herald to the eminent gentlemen who will take part in this discussion. My work is mainly introductory, but I shall also beg to be allowed to make a few elementary remarks concerning the genesis of the menstrual function, and the normal performance of the same.

As animal life evolves from the lower to the higher, we observe increased complexity of structure and function. The simple structure of an amœba, or of any of the forms of primitive life, is all that is necessary for its life work. As we reach relatively higher forms, like the polyp or the oyster, we find greater differentiation of structure for the relatively greater field of work. The same law continues as we advance to the stage of the higher vertebrates, and finally reach in man the ultimate which has been foreshadowed in the types and forms which have led up to him. The differentiation of the genital organs in individuals of separate sex begins very early in the scale of animal life, and the functions connected with those organs become more marked as we ascend the scale. Thus we pass from the *ovipara*, with their different gradations and varieties, to the *vivipara*, finally ending again in man. The phenomena connected with the impulse to reproduction in animal life are as clearly defined as any in the whole range of animal activity, and demonstrate the important relation which that impulse bears to physical existence.

The period or season of its occurrence is definitely fixed, due allowance for variations being understood ; the vascular and nervous systems participate in a condition of irritation and excitement — in fact, the entire appearance and behavior of the individual undergoes a change. Some of the insects change their color when the reproductive impulse influences them ; reptiles and fishes show unusual excitement, increase of glandular secretions, and hyperæmia of the genital organs; birds have brighter plumage. In the higher mammalia there is present at such a time not only a change in their appearance and behavior, but a discharge of mucus, or mucus and blood, from the genital

passage. It has been observed in mares, sows, ewes, asses, bitches, and cats, though it is less profuse in these animals which have hollow uteri than in those with thick and solid uteri resembling the human females. In the apes and monkeys — the animals nearest man — hemorrhage from the vagina has been frequently observed, and in some instances it occurred with the same periodicity as in women. These statements have all been fully substantiated by the most accurate and intelligent observers of animal life (Buffon, Cuvier, Saint-Hilaire, Ehrenberg, Raciborski).

It appears, therefore, that the productive impulse is not only associated with decided congestion of the generative organs, but with a more or less abundant discharge of blood, particularly in the higher animals. The culmination of the animal series is man, and in women we have not only the productive impulse accompanied with the bloody discharge, but we have it at fixed and relatively frequent intervals; we may even have the reproductive impulse and impregnation without the bloody discharge,* and almost immediately after the conclusion of a previous pregnancy;† finally as the evidence of the highest development in this direction, we may have the continually recurring bloody discharge without the productive impulse.‡

The terms "menstrual" and "menstruation" indicate that the function referred to recurs with monthly intervals intervening. There has been much ingenious speculation as to the reason for this particular interval — the menstrual wave, the menstrual cycle, etc., being carefully elaborated — but the ultimate facts are elusive. Some hints, wanting in definiteness, however, may be gathered from comparative zoology. Until we reach the primates the pelvic organs in most of the mammalia lie in the horizontal plane of the body. Sexual intercourse occurs only, as a rule, when the female is not pregnant, and its sole object is apparently the induction of pregnancy. With the primates, the erect posture being customary, the position of the pelvic organs is

* This is seen in the frequent examples of those who become pregnant before they have ever menstruated. Among the Eskimos this is a very common fact, according to Dr. F. C. Cook, recently physician to the Peary expedition.

† In the *New York Journal of Gynæcology and Obstetrics* for January, 1894, p. 125, is the account of a woman who bore a child July 4, 1892, had connection with her husband July 8th, and two-hundred and forty-three days later was again delivered of a healthy child.

‡ This is seen in the cases of women who do not marry, who devote themselves entirely to intellectual pursuits and continue to menstruate without the presence or the annoyance of the reproductive impulse.

changed, and also the conditions of the pelvic circulation. Sexual intercourse, at least so far as man is concerned, is practised without reference to the presence or absence of pregnancy. The repeated congestions accompanying the frequent performance of the sexual act may, at some time in the remote past, have tended to produce periodical increase in the tension of the pelvic circulation, and the discharge, which previously occurred only with or before sexual intercourse, may then have transferred its appearance to the occasion of increased vascular tension.

Or we may adopt the theory of Pouchet, that the period of a lunar month is essential for the formation of a decidua, and that if in this decidua an inseminated ovum is not implanted, the object of the decidua would be at an end and degeneration and hemorrhage would result.

The theory of Pflüger, that the periodical rupture of a Graafian follicle, with the attendant discharge of an ovum, hemorrhage from the ovary, and pelvic congestion, are the essential elements in menstruation, is a very reasonable one, for in countless cases conception is referred with great probability or even certainty to the period immediately subsequent to menstruation; but the argument is not conclusive, for the discharge of *ova* is now believed to occur quite independently of menstruation, possibly from a very early period of life, and it is known that it continues in some cases long after menstruation has ceased.*

The satisfactory explanation of the recurrence of menstruation at definite monthly intervals, therefore, remains to be presented.

The appearance of menstruation in a girl is usually accepted as evidence of maturity or womanhood. It is only one of the evidences, however, for associated with it are the development of the external genitals and the rounding of outline of the entire figure. It may be absent, maturity of the reproductive power being present notwithstanding. In civilized society it is usually regarded as a safe rule that one who has never menstruated, having reached the proper age to do so, is physically defective in some way, either on account of disease in early life or on account of

* Evidences of ovulation have been found in the ovaries of very young children. It has already been stated that there are many instances in which conception and delivery at term have occurred in those who have never menstruated. Cases are also reported in which conception and delivery at term have taken place years after the occurrence of the menopause. The writer is personally cognizant of three cases of this character, in one of which conception took place fourteen years after the menopause.

some fault of structure. It does not follow that such a condition is irremediable — in fact, we know that in many cases it is not. Women who are thus affected ought not to marry until the actual condition of their generative organs has been ascertained and the cause of their defect removed if possible.

As menstruation is one of the evidences of maturity, it will make its first appearance at different ages in different parts of the world, for all women do not mature equally early. Those who lead a natural life will usually mature earlier than those who live artificially, though this rule is sometimes reversed; savages earlier than highly civilized women, inhabitants of warm climates earlier than those in cold, the analogy from vegetable life holding good; those living at high altitudes earlier than those at the seacoast. There are also peculiarities as to races, nations and families which exert a modifying influence the same as in trees and plants. In this latitude the first menstruation seldom appears earlier than the thirteenth or later than the fifteenth year.

An analysis of two hundred cases from my private records, in which the nationality and age of first menstruation had been recorded, gives the following data:

NATIONALITY.	Number of cases.	Average age of first menstruation.
America	110	$14\frac{1}{8}$
Ireland	43	$14\frac{3}{4}$
Italy	11	$15\frac{7}{11}$
Germany	11	$15\frac{7}{11}$
France	5	$12\frac{3}{5}$
England	4	14
Sweden	4	$16\frac{1}{4}$
Austria	3	$15\frac{2}{3}$
Canada	2	14
Scotland	1	16
Nova Scotia	1	18
Denmark	1	17
Russia	1	19
Switzerland	1	19
Poland	1	16
Greece	1	13

Of the largest series of cases, one American menstruated first at ten, five at eleven, nine at twelve, twenty-eight at thirteen, twenty-six at fourteen, eighteen at fifteen, thirteen at sixteen, five at seventeen, and five at eighteen; total, one hundred and ten.

Four Irish menstruated first at twelve, five at thirteen, fifteen at fourteen, six at fifteen, four at seventeen, one at eighteen, one at nineteen, and one at twenty.

NATIONALITY.	Date of earliest first menstruation.	Date of latest first menstruation.
Americans	10	18
Irish	12	20
Italians	13	18
Germans	13	18
French	11	15
Swedish	15	20
English	13	16

Average age of first menstruation for the entire two hundred cases, 14.5+ years.*

No function of the body presents a wider range and variety of phenomena than menstruation; no function is more frequently disturbed. The complex conditions of civilized life are probably responsible for this, since the variations are few among those who are free from such conditions. Faults of structure, errors of diet and hygiene, disease in early life, exposure, fatigue, excesses of all kinds, act and react in producing a complex out of a simple function. The tension of the vessels in the pelvic circulation being increased as the period of menstruation approaches and the capillaries of the endometrium furnishing the area of least resistance, a discharge of blood within that area is the result. The quantity of blood lost will vary with the extent and continuance of the tension — the *vis a tergo* — with the area and resistance of the endometrial vessels, and with the pressure exercised by the uterus to restrain and check the flow. A firmly contracting uterus may check the flow both suddenly and effectually, as is sometimes seen after the administration of a dose of ergot or the influence of low temperature. An extensive new growth, such as myoma or cancer, may cause profuse flowing when added to the increased vascular tension of the menstrual period. With the blood is mingled the *débris* of broken vessels and the surface epithelium of the uterus and vagina over which the blood flows. The increased congestion of the uterus and vagina signifies increased activity in their glandular structure, and therefore

*With the exception of the American series of cases, the numbers are, of course, too small in these tables to warrant any deductions as to national peculiarities.

increased discharge of their secretions. In this way the products of menstruation are accounted for.

The duration of menstruation is subject to many fluctuations, and is influenced and modified by many factors. It has almost as many types as there are variations in the number of days which it consumes. Reference has already been made to the "menstrual wave." This term implies an onward movement, a gradual increase of flow until the maximum is reached, and then a gradual decline or recession until the ordinary conditions of the pelvic circulation recur. But there are very many cases in which a discharge of blood is not the only phenomenon of menstruation. These accessory phenomena constitute the so-called *molimina* of menstruation, and may precede the appearance of the flow for many hours. A complete menstrual period or experience consists, therefore, in *molimina* plus flow, and may continue from a day to a week, or even slightly longer.

In the one-day type the flow is scanty and the blood deficient in coloring matter — in fact, it is principally serum — and there may be scarcely enough of it to soil a single napkin. The other phenomena in this type of menstruation are usually very pronounced, especially cramps in the uterus, pain in the loins and headache. It occurs in women with imperfectly developed uteri; in the anæmic, especially in the young; and in those who suffer with chronic diseases, such as pulmonary phthisis and nephritis.

In the two-days' type the flow of blood may be free and of natural appearance the first day; the second it is scanty and watery. It is usually preceded by pain, as in the one-day type, and has anatomical conditions similar to that. In the three-days' type the conditions may be quite normal as to the quantity of blood lost and the general condition of the patient from beginning to end, the flow reaching its maximum on the second day, then gradually ebbing and disappearing. Or there may be pain during the first day or two, varying in severity with the general and local physical conditions of the individual. Profuse hemorrhage is seldom a marked feature of this type.

In the four-days' type the conditions may also be quite normal as to flow, pain and general or local disturbance. This and the three-days' type include the great majority of cases in which the function is performed naturally. But it also includes many cases in which hemorrhage is abundant, cases in which the uterus is the

seat of endometritis, malignant disease, or some other morbid condition. Pain is a much less prominent feature than weakness and exhaustion with such cases. The type lasting five to seven days is not usually so distinct as those of shorter duration. It may not be accompanied by any particular disturbance, nor leave the patient particularly weak or exhausted at its close. Should it continue a week there is often little more than a mere stain the last day or two, without other manifestations. In some cases the flow and other symptoms cease entirely on the third or fourth day, recurring after an interval of a few hours, and continuing from one to three days longer.

Those who flow profusely five to seven days or longer are almost invariably sufferers with uterine disease of a more or less serious character. They cannot properly be said to illustrate a type of menstruation, since menstruation is only an incident which for the time serves only to intensify their morbid condition.

A discharge of blood may be the only evidence to a menstruating woman that she is experiencing any thing out of the usual course. Women who lead an out-of-door life, who are robust and well developed, women who are without high nervous organization and are not very sensitive to pain, and women who are so intensely occupied that they seldom think of their own physical condition, may be ignorant, so far as their own experience is concerned, of the so called menstrual *molimina*. Unfortunately, this cannot be said of a great multitude of women, some of whom are well formed, more of whom are defectively formed or diseased. To them menstruation means not only a discharge of blood, in greater or less abundance, but a multiplicity of attendant discomforts and annoyances, which may amount even to the most intense physical or mental suffering. The term *molimina* is often applied to these bad sensations collectively. They are due mainly to the combined action and reaction of the vascular and nervous systems, especially to increased vascular tension and congestion, which may be regarded as the chief distinguishing feature of the function of menstruation. If this tension is not relieved through the natural channel, the pressure gives rise to pain. As the vascular tension radiates away from the pelvis, the organs and tissues which are brought within the area of its influence respond to its stimulus, and pain or other sensations of discomfort are the result.

Thus we obtain the well-known variety of sensations in the pelvic organs, the liver, the kidneys, the stomach, the intestines, the brain, the skin — in fact, there is scarcely an inch of the body which may not react to the unpleasant impulses of the disordered function. The mental function, digestion, secretion, assimilation, may also be sharers in the disturbance, and the statement of its far-reaching possibilities for annoyance is sustained.

Thus we see that any existing morbid condition may be intensified as often as menstruation recurs. This fact is of great importance, for it should teach us to be on our guard to anticipate the evil consequences which may arise. It should teach us to guard against hemorrhage in the presence of existing uterine disease, to insure rest, and other suitable precautions, if there is a tendency to mental disease or disease of the viscera or the skin, and, in general, to keep the patient under the most favorable conditions possible before and during the entire performance of the menstrual function.

From this review of the situation it may not be out of place to urge that it is the duty of the family physician to pay more attention than has heretofore been given to the instruction of the women, and particularly the young who are under *their* care, concerning the precautions which they ought to exercise both before and after menstruation has been established. We cannot be too particular and precise in this matter when we reflect that so large a portion of the disease which is peculiar to women arises from errors in connection with this function. Is there not a responsibility resting upon us which should induce us to insist that such errors and imprudence may no longer be practised without our vigorous and persistent protest?

XIII. Discussion on Menstruation and its Abnormalities.

2. Profuse Menstruation.

By CHARLES P. NOBLE, M. D.,
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We shall consider in this paper that profuse menstruation is synonymous with menorrhagia, or too great loss of blood at the menstrual period. Our subject will then embrace all those conditions which can give rise to this symptom. The terms profuse

menstruation and menorrhagia are of practical value, and have come down to us from the older gynæcology, which was almost purely clinical, and dealt but little with the pathological conditions at the basis of symptoms.

The causes of menorrhagia are numerous. They are best grouped as constitutional, general and local.

Among the constitutional causes we have the hemorrhagic diathesis and scurvy. Among the general causes cardiac and hepatic diseases are the most important. Whatever will bring about a lack of tone in the general circulation will predispose to pelvic congestion and menorrhagia. Incompetency of the cardiac valves and cirrhosis of the liver are the most frequent of the general causes of menorrhagia. Chronic Bright's disease is also a cause of menorrhagia, but in such cases it is questionable whether it is the kidney disease itself or the associated morbid condition of the blood vessels and of the heart, which is the real cause of the profuse menstruation.

The local causes of menorrhagia are: Pelvic congestion, endometritis, metritis, adenoma, polypus, fibroid tumors, carcinoma or sarcoma, retained products of conception, hæmatocele, and certain diseases of the uterine appendages, especially cystic degeneration of the ovaries.

A glance at this long list of causes of menorrhagia makes it apparent that it will be impossible, in a brief paper, to more than glance at the nature of these conditions, and to summarize our knowledge of their treatment.

It is worthy of comment that the common causes of menorrhagia vary with the period of life to which the patients belong. In young virgins, shortly after the onset of puberty, menorrhagia at times occurs. Under these circumstances it is due to the fact that the menstrual function has not been perfectly established. There is lack of control on the part of the nervous system, both of the menstrual function itself and of the vaso-motor nerves in general. In the cases which have come under my observation, this has appeared to be the cause of the profuse menstruation. These girls were plainly "growing too rapidly," they were "shooting up," and had the lax tissues characteristic of such individuals.

Menorrhagia in young childbearing women is usually due to some mishap in connection with pregnancy and parturition. An incomplete abortion, a subinvoluted uterus, laceration of the cer-

vix and retroversion of the uterus are the most frequent causes of menorrhagia in women of this class. Inflammatory disease of the uterine appendages is also frequently present in women at this period of their lives, and menorrhagia due to this cause, with coincident endometritis, is quite common.

Menorrhagia occurring in women approaching the forties, and in those who are older, is of very suspicious import. In younger women, as a rule, it is a symptom of some curable condition, and is of importance only because of its severity — the loss of blood producing anæmia, and breaking down the patient's health. In older women it has a very different signification. It is almost always due to gross disease of the uterus. These women, as a class, have passed the period of childbearing, and their sexual organs are being prepared for the retrograde changes which take place at the menopause. As we know, it is a law that tissues, especially glandular tissues, which are undergoing atrophic changes, are most apt to develop malignant growths. The uterus is no exception to this rule, and cancer is extremely common among the class of women under consideration.

The ancient tradition that it is natural and proper for a woman to bleed profusely and irregularly when she approaches the period of the menopause, is the indirect cause of many preventable deaths from cancer of the uterus. This traditional belief is generally accepted by women themselves, and, unfortunately, is advocated by many physicians who have not given the subject of diseases of women much study. This teaching they received as students, and although it has long been shown to be false, they have never abandoned it. It is natural that women should hold to this opinion, because it was quite current in the profession a generation or two ago. Popular beliefs are usually a fair reflex of what was the professional teaching of fifty or seventy-five years before. Believing it to be natural at their time of life, women disregard a menorrhagia when they are forty or fifty, which would cause them much uneasiness if they were twenty-five or thirty. The same is true of a leucorrhœa. In this way, but too often, carcinoma is permitted to develop to the stage of ulceration, and to that of secondary deposit, before the surgeon is consulted. Perhaps a physician is consulted at an earlier period who is a believer in the doctrine of climacteric hemorrhages, and who soothes the patient with the assurance that there is no occa-

sion for alarm, as "it will all come right at the change of life;" and so the poor victim rests in fancied security until she has a rude awakening a little later, and discovers that death is inevitable owing to the inroads which the disease has already made. My own experience is so distressing with reference to the management of cases of cancer that I feel very strongly upon this subject. About one-tenth of all the cases which come under my observation are the victims of cancer, and of these not more than one in ten have consulted me sufficiently early to enable me to offer any reasonable ground of hope of being able to effect a cure by a radical operation.

While it is true that cancer is a very common, if not the most usual, cause of menorrhagia in women approaching the menopause, it is by no means the only one. Endometritis, adenoma, and fibroid tumors are also frequent causes at this period of life. It is a striking fact that whereas in young virgins the causes of menorrhagia usually have to do with the nervous system, and that in young childbearing women menorrhagia is usually due to some mishap connected with pregnancy, that in older women it is almost always due to gross disease of the uterus.

Treatment. — As loss of tone of the vascular system predisposes to menorrhagia, it follows that by building up the general health and improving the tone of the circulation much can be accomplished in any case of menorrhagia. Digitalis, strychnine, and ergot act directly upon the muscular structure of the heart and arteries, and lessen pelvic congestion, and can sometimes be depended upon to lessen hemorrhage from the uterus, provided the local morbid conditions are not of a very marked character.

The local treatment of menorrhagia depends, of course, upon the nature of its cause, so that the most important point is first to make a diagnosis. One of the drawbacks to the older nomenclature, to which our present title belongs, is that it does not tend to favor accurate diagnosis. There is no treatment for menorrhagia *per se*, and that fact should be distinctly emphasized. Many a woman has gone to her death from unrecognized cancer, or cancer recognized too late for its eradication by operation, because the attending physician was satisfied with the diagnosis of menorrhagia, and addressed his treatment to that entity. Every case of menorrhagia deserves careful study, and this is especially true when it occurs in women who are upward of thirty

years of age. A careful inquiry into the case will usually put the astute physician upon the right track. In a case of short duration, in which the amount of blood lost is inconsiderable, especially if there be no complaint of pelvic pain and no breaking down of the general health, it may be permissible to treat it upon general principles, — that is, to regulate the bowels, the habits of the individual, to treat any symptoms which may be present, to prescribe regular habits of living, and to administer digitalis, strychnine, and ergot. Especially is this the case if the patient be unmarried, and if the discharges are free from offensive odor. The physician would be the more inclined to make use of general treatment only if in such a case the heart was found to be incompetent or the liver congested. But he should not permit himself to continue the treatment without an accurate diagnosis unless the patient promptly and steadily improves.

Accurate diagnosis is the key-note to success in the management of cases in which menorrhagia is a symptom. That this is a truism makes it none the less important that it be followed out faithfully in the management of each individual case. With the exceptions already referred to, and young girls, it should be the maxim of the practitioner that every woman having menorrhagia should have a careful pelvic examination. A careful examination should be made to determine whether or not pelvic congestion is present; the size, shape, consistency, and position of the uterus; whether or not it be inflamed; whether it contains a tumor or the products of conception. Also the condition of the uterine appendages should be investigated; whether or not these are healthy, and if not, the morbid condition present; whether this be a tumor, inflammatory trouble, or a hæmatocele. The condition of the general circulation, the heart and the liver should also be investigated, and in no case should an examination be considered complete until all of these conditions have been considered.

It may prove of interest if I give succinctly my own views concerning the management of the various conditions which give rise to menorrhagia.

Pelvic congestion, when not due to or accompanied by structural disease in the pelvis, and when not the result of a recent parturition, is best treated by remedies addressed to the general health, — by tonics, by heart-stimulants, and by proper hygienic measures, including active out-of-door exercise. Pelvic conges-

tion alone is seldom the cause of menorrhagia, except after parturition, but it predisposes to endometritis, and in this way indirectly becomes a cause.

Endometritis and *metritis*, when not complicated by inflammatory disease of the uterine appendages, are treated most satisfactory by dilatation of the cervix and a careful and thorough use of the sharp uterine curette and cutting curette forceps. In this way more can be done in ten minutes than can be done in ten weeks in any other way. In my hands, in the class of cases referred to, the results obtained have been very satisfactory, and the failures to cure and the recurrences have been exceptional. While stating this in general terms, it is admitted, of course, that the final stages of areolar hyperplasia are not specially influenced by the use of the curette, or by any other form of treatment except the ablation of the uterus.

Adenoma is likewise best treated by the use of the sharp curette.

Malignant adenoma calls for pan-hysterectomy.

Polypi should be removed *per vaginam*, and the endometrium thoroughly curetted.

Fibroid tumors, which are giving rise to menorrhagia, should be removed *per vaginam* when they belong to the submucous variety and can be removed from below, otherwise they should be removed by hysterectomy.

Carcinoma and *sarcoma* of the uterus call for pan-hysterectomy whenever the disease remains localized in the uterus, otherwise a partial operation, having for its object the removal of necrotic tissue, or the prevention of hemorrhage or foul-smelling discharge, may or may not be advisable in individual cases. When the disease has involved the pelvic glands to any considerable extent, and when pain has become a marked feature in the case, I have seldom found much benefit from operation. It may prevent or control the foul-smelling discharges, but it seldom modifies the pain, unless this has been of an inflammatory character, due to septic absorption from the necrotic surface of the cancer. Every case, however, should be judged upon its merits, and, as the result in all cases which are far advanced is an inevitable and more or less painful and disgusting death, it can at least be said that operation can hardly make matters worse, even though it fails to afford much relief.

The treatment of *retained products of conception* is their removal.

Hæmatocele is due almost always to a ruptured extra uterine pregnancy, and should be treated by cœliotomy, removal of the pregnant tube and of the effused blood.

When endometritis and menorrhagia are produced by inflammatory disease in the uterine appendages, or by ovarian tumors, the conditions are such, as a rule, as to call for cœliotomy and the removal of the diseased appendage or appendages.

Cystic degeneration of the ovaries is at times a cause of menorrhagia and metrorrhagia. A number of such cases have come under my care. In these cases the ovaries were not markedly enlarged, and upon bi-manual examination it was only possible to say that the ovaries were rather large and tender. In these cases curettement, the rest cure and all manner of internal medication was tried without avail, as the hemorrhages recurred very promptly, and the patients were not cured until the ovaries were removed. In each of the cases cure promptly resulted.

I have as yet said nothing about the use of electricity in the treatment of menorrhagia. The advocates of electricity claim that this is perhaps the field in which it is of the greatest value, and I am inclined to believe that, for simple cases of endometritis or metritis, it is capable of effecting a cure. But the method of treatment is tedious and painful, and, when sufficiently strong currents are employed to assure the effect upon the uterus, the method is not without danger. As compared with the curette, I believe it is more dangerous, less certain, more painful and much less satisfactory.

My own experience with the use of drugs in the treatment of menorrhagia has not been large. Digitalis, strychnine and ergot have proved themselves in my hands to be of real value, and, except in those cases in which the local conditions have been so bad as to make it irrational to expect much effect from constitutional remedies, the results from the use of these agents have been satisfactory. My experience with other drugs has been small. Hydrastis canadensis has been used to some extent, and I have never been able to satisfy myself that it has the slightest action in the way of controlling uterine hemorrhages.

There are two other forms of treatment of value, especially in bridging over an emergency in the treatment of cases of menor-

rhagia. These methods are systematic rest in bed and the use of the vaginal tampon. With the exception of those cases in which menorrhagia is due to malignant disease, to adenoma, or to the retention of the products of conception, rest in bed has a very positive influence in lessening the amount of blood lost. It is of practical value chiefly in the management of cases which are seen late, after so much blood has been lost that the patients are suffering from acute anæmic and profound prostration, so much so that it might not be safe to anæsthetize them in order to institute any radical method of treatment. This reference applies especially to cases of fibroid tumor. I have again and again in such cases, when consulted under the circumstances referred to, been able to greatly improve the condition of the patients by putting them to bed, keeping their bowels regular and perhaps administering strychnine, digitalis and ergotine. I have in this way been enabled a number of times to do hysterectomy with success, when I am satisfied had the operation been performed when the patient first came under observation the result would have been fatal.

In certain cases the use of the vaginal tampon is of great service in temporarily arresting hemorrhage. In the class of cases just referred to, when the bleeding is aggravated by the onset of the menstrual period, by firmly tamponading the vagina during the days when hemorrhage otherwise would be most free, it is quite possible to limit the loss of blood to a very small quantity. This has been advocated as a systematic means of managing certain otherwise intractable cases of menorrhagia, and I can add my testimony to its value, at least as a temporary expedient in the management of certain cases of uterine hemorrhage.

The ligation of the uterine arteries offers another means of controlling hemorrhage from the uterus, no matter what the immediate cause of the hemorrhage may be. As a preliminary operation, in dealing with a small class of fibroid tumors, in which a large amount of blood has been lost, and in which acute anæmia is present, this operation offers much. Likewise in certain cases of persistent hemorrhage after the removal of the uterine appendages, in combination with thorough curettement of the uterus, I believe that this procedure will be of great value.

Certain cases of persistent and recurrent hemorrhage have come under my observation, which have resisted all the usual methods of treatment. In such cases the cause is usually malignant

adenoma. When the microscope clearly shows this to be the case, or when the trouble recurs time and again, after thorough curettement of the uterus, even though the microscope does not demonstrate the presence of malignancy, hysterectomy is indicated. In such cases it is a life-saving measure to prevent death from hemorrhage. In cases in which the microscope does not show malignancy, it would be proper to make use of electricity, after the failure of curettement, before resorting to hysterectomy. In one case in which curettement repeated three times failed to cure, and in which the removal of the somewhat diseased uterine appendages (cystic ovaries, catarrhal salpingitis) likewise failed to cure, this result was accomplished by packing the uterus with gauze squeezed out of 50 per cent. chloride of zinc solution, which brought away a slough of the endometrium, and a part of the underlying muscularis. This very radical and somewhat hazardous method of treatment I should recommend only in exceptional cases, and not in any case in which the appendages have not been previously removed.

I have as yet made no mention of the treatment of menorrhagia by the application of carbolic acid, iodine, perchloride of iron, nitric acid, or other caustics to the endometrium, either by means of a cotton-wrapped applicator or a uterine syringe. The reason for this omission is that I believe these methods to be either inefficient or dangerous or both. The milder escharotics are inefficient; the more powerful are dangerous in that their action cannot be controlled within conservative limits. The experience of the generation preceding us has so well demonstrated the dangers attendant upon this form of treatment that it is unnecessary for us to go over the same ground.

Conclusions. — (1) Menorrhagia in young virgins is usually functional, due to disturbances in the vaso-motor nervous system, or to relaxation of the tissues; in general caused by the rapid growth which at times takes place about the time of puberty. Because of its pathology menorrhagia in young virgins is usually curable by general treatment.

(2) Menorrhagia occurring in young childbearing women is usually due to some mishap in connection with pregnancy or parturition, such as the retention of products of conception, laceration of the cervix or perineum, retro-displacement of the uterus, sub-involution, inflammation of the uterine appendages, and pel-

vic congestion. Menorrhagia in this class of women is curable. It usually requires local treatment of an operative nature. When due to subinvolution and malposition of the womb, operation is unnecessary.

(3) Menorrhagia in women approaching the forties and in those who are older is usually due to gross diseases of the uterus, such as fibroid tumors, polypi, adenoma, or malignant tumors. Menorrhagia occurring in this class of women, except when due to advanced malignant disease, is curable, but almost invariably requires operative treatment applicable to the disease present in the particular case.

(4) As menorrhagia is a symptom if not a disease, an exact diagnosis is requisite in every case. With the exception of young virgins it is desirable that a physical examination of the pelvic organs be promptly made. The importance of this examination is the greater with the increasing age of the patient. Special considerations should influence the practitioner to postpone the local examination in the unmarried unless it be reasonably certain from the symptoms that gross local disease is present.

(5) There is no treatment for menorrhagia *per se*. By general measures, such as rest in bed and the use of digitalis, strychnine, and ergotine, pelvic congestion can be lessened, and in that way menorrhagia can be, at least, in part controlled; but it cannot be too strongly insisted upon that in every case of menorrhagia an exact diagnosis must be made and the appropriate treatment addressed to the disease which is present.

XIV. Discussion on Menstruation and its Abnormalties.

3. Scanty Menstruation.

By FRANKLIN TOWNSEND, Jr., A. M., M. D.,
ALBANY.

As I understand it, scanty, like profuse menstruation, indicates one of the ordinary departures from what we all understand as characteristic of a normal or healthy monthly discharge of menstrual blood from the uterus, to any deviation from which the term "paramenia" might aptly apply. One of the most interesting

works on all the peculiar diseases of womankind, to me, is that of Dr. Robert Barnes, of London, under whose tuition I had the opportunity of gaining much in an early training which proved beneficial to me in after years. This author classifies the subject of disordered menstruation under the one term "amenorrhœa," including deficiency of the flow. But it would seem to me that terms of this nature, like so many others, we, as physicians, have to use in medicine, are inadequate to express that which we really mean. Many different conditions may exist besides the one that is most prominent; at the same time this *main symptom* is that which attracts the attention of the patient and which eventually causes her to seek medical advice. It must, therefore, become evident to us all that to thoroughly analyze our patient's condition and to discover, if possible, what are the associated phenomena connected with the case, as well as to what the cause of the most prominent symptom is due, becomes our serious duty.

With these preliminary remarks, allow me, then, to take up some of the various causes which seem to induce "scanty menstruation" as a part of the general subject under discussion.

To my mind the most fertile soil to develop such a malcondition is to be found in the state of the blood, and by this I mean that when the blood plasma is wanting in its normal constituents, and where the blood globules are deprived of their natural ingredients, both caused by malnutrition, the general body *must suffer*, and the term "chloro-anæmia," therefore, has thus been given to express such a condition. As to this class of chlorotic patients there could be much said, more especially by the specialist in nervous diseases. And as I write I can bring to mind much of solid worth as coming from such men as Goodell and Mitchell, of Philadelphia, who not only recognized the curious neurotic elements connected with such cases, but also, through this knowledge, made application of the same by instituting a course of treatment which has availed much for suffering women.

Should we draw a comparison between the society woman of to-day, the humble, hard-working peasant, and the Indian squaw, or stout negress from our southern latitude, it would be difficult to believe that *all* could have sprung from the same parent stem. Indeed, observation goes far to prove that those of the female sex who are not exposed to depreciating influences can

compete in strength and endurance with the men of their races. From such facts as these, logically reasoning, the human female, if properly developed and placed beyond conditions which might militate against her physical well-being, would in no degree be the inferior of the male. The present customs consonant with the age, in dress, exercise and general hygienic details, seem to be the vice which tends to bring about this condition of "chloro-anæmia," with the result of a disordered menstruation and the scantiness of its normal flow.

Long ago Dr. Thomas A. Emmet pointed out the importance of not permitting young girls who were just coming into maturity to exercise their mental capacities at the expense of their physical capabilities. There is but little question that such advice was good, and instead of the young ladies of to-day being encouraged to engage in out-door sports, very few have such opportunities, and I imagine that it would be wiser for them and their general health were they thus properly trained and instructed. Want of air and exercise, in deteriorating the blood and enfeebling the two great systems of the body, the nervous and muscular, should be properly classed as two of the most important factors as causes for many of the menstrual disorders of the day. The necessity for the proper maintenance of these systems must be recognized, and the *mens sana in corpore sano* surely becomes essential to a healthy condition. Girls of tender age are required to apply their minds too constantly to master studies beyond their mental capacity, because of the so-called "progress of the times"—the results from such training being a rapid development of the whole cerebro-spinal nervous system, precocious talent, refined and cultivated taste, etc.; but on the other hand comes also as a result, the morbid impressibility that implants itself upon the generative organs. And added to this class of such functional uterine morbidities, among which is to be placed scanty menstruation, would naturally come the subject of the improprieties in the manner in which women clothe themselves. I can not better than express with Thomas, of New York, that the dress adopted by the women of our town may be graceful and becoming; it may possess the great advantage of developing the beauties of the figure; but it certainly is conducive to many menstrual troubles. The process of respiration is entirely done by the thoracic muscles, the diaphragm taking a

most important part in the performance of this physiological process; the proper performance of this function must, therefore, be interfered with by the current custom of tight lacing. "The habit of contracting the waist in such a manner, accomplishes what the surgeon does when he holds a broken rib in place by a snug bandage." Thus come many troubles to the pelvic organs which lie in such close relation and which must, therefore, partake of functional difficulties. In estimating the effects of direct pressure upon the position of the uterus, its extreme mobility must be constantly borne in mind. No more striking evidence of this fact can be cited, than that as proved by the use of the Sims speculum in our usual examinations.

Other causes might be enumerated as giving rise to this form of disordered menstruation, as imprudencies during the menstrual nisus, or after parturition, prevention of conception, or induction of abortion, etc. But time will scarcely permit of any particular discourse upon these subjects. Suffice it to say that they remain, unfortunately, as factors of causation, and I am afraid before much improvement can be attained for their removal, a desire must first be cultivated in the minds of those who are the sufferers, and, as a rule, I regret to say that, in my experience, neither the desire nor the appreciation of the importance of such a subject toward the requirement of physical excellence, sufficiently exists among the more refined and better class of the women of to-day.

Chloro-anæmia, as a physiologico-pathological condition, may, and can well exist, resulting in scanty menstruation. As to climate and its influences upon this function (menstruation), one might say something, but the subject is so well known to us all that I shall refrain from speaking of it, except to mention it as an additional cause of the malady in question. Serious disease of the kidneys or of the lungs, as well as many of the zymotic troubles so frequently encountered, are also to be regarded as contributing causes toward disturbing the normal function of menstruation, often bringing about a scantiness of the flow, and even at times causing it to cease entirely. Often a leucorrhœal discharge at periodical intervals in women thus diseased, takes the place of a normal flux, which subject has been thoroughly discussed by Dr. Currier, of New York, at different times before this society.

In my experience I can not say that I have met with other causes for scanty menstruation. It may be possible that many

forms of uterine tumors or other pathological growths connected with this organ are productive of it, yet the most pertinent factors seem to me to be those as already cited, chloro-anæmia being the most prominent of all. With this in mind, therefore, it would appear, from a purely physiological standpoint, that treatment should be directed toward correcting so far as is possible this condition.

According to Virchow, chlorosis or chloro-anæmia is to be distinguished from leukæmia or leucocythemia, in that the entire number of the blood globules is less. In leukæmia the colorless corpusclas seem to take the place of the red ones, and a true diminution in the number of the cellular elements in the blood is not produced. In chloro-anæmia the elements of both kinds become less numerous without the occurrence of any disturbance in the numerical relation between these different corpuscles. This sage pathologist goes on to say, further, that "Anatomical observations indicate that the foundation of chlorotic ailments are very early laid, for the aorta and the larger arteries are usually, and the heart and sexual organs frequently, found imperfectly developed."

To originate a new function, to bring to perfection a hitherto unexercised power, must make great demands upon the physical strength, and often unfortunately these demands are larger than are required for its continued activity. Numerous instances must come to our mind where, after menstruation had become fairly established, chloro-anæmia suddenly and unexpectedly makes its appearance, suppressing, either partially or completely, the flow. In many such cases emotion frequently plays an important part; jealousy, disappointments of various kinds, especially those offending the affections, the "spretæ injuriæ formæ," are often the immediate antecedents, which eventually result in impoverishment of the blood. Naturally, in the treatment of such conditions as described, iron as a remedy par excellence is the first suggestion that appeals to the physician, and such may be true, but I might add, only in its timely and proper administration, which requires more judgment than is commonly shown, and from clinical experience I can well agree with Barnes that this drug is only tolerated after vascular excitability or irritability is assuaged; it then becomes readily assimilated. To bring about this result most satisfactorily is best done by the use of salines, and I have found that the old preparation of the liquor ammonii acetatis,

when freshly made, fulfills the purpose most admirably. After the use of this or other salines, iron can be given with most decidedly beneficial effects.

Electricity, too, as suggested by many, holds a most important place as a factor in the treatment of this disorder. Again I can agree with Dr. Currier's statement, made before this Society, that I fail to see much benefit arising from the use of manganese in any of its various forms. Other drugs might be mentioned, all useful in their way, in the treatment of this malady, each one having its champion to second its merits, but time will not permit at present of speaking further in this direction.

To summarize, then, I would say:

1st. That scanty menstruation is most usually the result of malnutrition in both young and middle-aged women, married or single.

2d. That the primary seat of this trouble lies in the condition known as chloro-anæmia.

3d. That its treatment must be directed in an intelligent manner toward rectifying this condition.

And, lastly, that a persistent patience must be persevered in with the various forms of treatment laid down, if a permanent cure is to be expected.

XV. Discussion on Menstruation and its Abnormalities.

4. Dysmenorrhœa.

By HOWARD A. KELLY, M. D.,
BALTIMORE, MD.

Names have often proved serious obstacles to scientific advancement. Thus, in gynecology, the names "pyosalpinx" and "hydrosalpinx" have long retarded a thorough investigation of the natural history of these conditions in their earlier stages by conveying an impression which has become fixed by tacit assent, that the pus and the serum in the tubes is the disease itself, and not merely a by-product of the disease in its later stages.

"Dysmenorrhœa" is nothing more or less than pelvic pain at the times of the menstrual congestion and the menstrual flow,

and is, under these circumstances, the concomitant symptom of a large variety of diseases of the uterus, tubes and ovaries. I wish to emphasize and insist upon this fact at the very outset, convinced that if you will accept my views I will be instrumental in aiding a large number of suffering women, as well as in saving you from committing certain errors common to the medical practice of to-day.

Dysmenorrhœa is, therefore, merely an awkward name for a symptom common to numerous diseases and should consequently never be entered in a history as the *diagnosis.*

To give that precision to my statements which can only come from digested experience, I have analyzed, with reference to this symptom, 400 cases in which I have opened the abdomen for pelvic diseases. I find that 289 of the 400 cases, taken in series as they were operated upon, suffered from dysmenorrhœa, while 111 were without this symptom. Of the 400 cases, 255, more than half, suffered from some form of obscure pelvic affection, such as usually escapes the attention of the general practitioner; in other words, 255 of these women had pelvic peritonitis, with adherent ovaries and tubes, tubercular peritonitis, pyo- and hydrosalpinx, tubo-ovarian abscess, salpingitis and hæmatoma of the ovary. Now, of these 255 cases of pelvic disease, there were 180 in which dysmenorrhœa existed, while it was absent in but 75. In addition to these 255, there were 55 cases of retroflexion in the 400, of which 44 also suffered from dysmenorrhœa. The majority of these cases applied for relief solely because of their pelvic pains, aggravated at the menstrual period, and many of them had been treated for months and years for dysmenorrhœa.

In addition to the cases of pelvic inflammatory disease, small ovarian tumors and retroflexion, there is still another group of dysmenorrhœic women, whose sufferings are due to small myomata. I have repeatedly discovered these by a minute rectal examination in young women who had been treated persistently for "dysmenorrhœa."

Believe me, gentlemen, I would not have taken this trip to Albany to make these brief remarks before you, did I not believe it to be of the utmost importance that you, and through you the profession at large, should realize that they are holding under treatment for "dysmenorrhœa" to-day a large number of women suffering with small tumors and pelvic inflammatory dis-

ease. Let me put the converse of the proposition: Where do all the large myomata come from if not from the small ones which are at first unrecognized? Put the question to any one of these women coming to you with a mass of large myomata filling the abdomen, and she will tell you of years of menstrual pains and protracted treatment for this symptom before a correct diagnosis was made. Again address the question to any of the old cases of pelvic inflammatory disease, and you will likewise learn of years of fruitless treatment before the true condition was suspected.

There is another type of dysmenorrhœa common to young girls, in whom the menstrual habit is becoming established, associated with a variety of dyscrasiæ, the most prominent of which is chlorosis; this form of dysmenorrhœa does not often persist beyond the twentieth year. There is further the dysmenorrhœa of the neurotic and hysterical woman, whose whole nervous system is at fault, and in whom moderate pain is described as "agony." This type is particularly prone to be associated with defective development of the uterus and ovaries.

Treatment.— Above every other consideration, and before I speak of the direct treatment, let me impress you with the great danger of the use of morphine in combating this symptom. Under but one condition, and one only, is the use of this drug justifiable, and that is when the dysmenorrhœa has been demonstrated to be due to a gross pelvic lesion, and the patient is under treatment preparatory to its removal by operation. There is a strange blindness which prevents many doctors from recognizing the hysterical element in their female patients, and as a consequence of this want of professional insight, I have seen many poor creatures tattooed with the hypodermic needle and saddled with this accursed habit. Never give morphine in any protracted disease marked by recurring paroxysms of pain, which does not tend toward a fatal issue. For the young girl, attention to hygiene, regulation of her exercise and study, and above all rest in bed, are invaluable in the treatment. Mild sedatives, hot teas and a full hot hip-bath, with the administration of aloes and myrrh or asafœtida to empty the lower bowel, help to accentuate the pelvic congestion and so aid in bringing on the flow. I need not delay here to dwell upon the treatment of such well recognized diseases as chlorosis, rheumatism and other associated ailments.

Be wary, gentlemen, in beginning what is commonly called "local treatment" in young women, as it is rarely of value, and once started is apt to be kept up indefinitely. If the dysmenorrhœa is persistent and excessive in these cases, make a thorough examination at once under anæsthesia, per rectum and abdomen — remembering always the maxim of the ancients, "Magnum est crimen perrumpere virginitis hymen."

When serious pelvic disease exists, you will treat this and so relieve the dysmenorrhœa. If the existing disease threatens life or is incompatible with fair health, and there is no prospect of relief by temporizing measures, you will, without hesitation, act in the patient's best interest by removing the tubes, ovaries or uterus to effect a cure. In less aggravated conditions your judgment will be tested in weighing the *pros* and *cons* to operative measures. Where the tubes are sealed by inflammation and the ovaries are bound down, you will have less hesitation in interfering and anticipating the menopause. If dysmenorrhœa persists and no local lesion is discoverable to account for it, a thorough dilatation of the cervix is often of service. From my experience I would estimate the utility of this procedure about as follows: Seventy per cent are benefited for a time; forty per cent are permanently benefited; while ten per cent are permanently relieved. The most effective field for this operation is in cases which are distinctly spasmodic in character.

As a last resort it is right in rare instances, where the patient is not neurotic, and occasionally, even in the presence of this complication, to remove ovaries and tubes for painful menstruation which is wrecking the health, even though the pelvic organs are known to be absolutely free from disease.

In conclusion, let me briefly recapitulate. Almost without exception all those cases of pelvic inflammatory diseases which will later fall into specialists' hands are to-day in the hands of general practitioners under treatment for dysmenorrhœa.

A careful examination under anæsthesia, per rectum and abdomen, if necessary, at the same time, drawing the uterus down with tractors, will reveal the cause of the dysmenorrhœa. This examination must not be undertaken in young women without first trying the effects of general treatment, during which time the case will often right itself. In young unmarried women the bimanual examination should never be conducted per vaginam.

The practitioner must not fail to recognize and classify separately the purely hysterical cases, in which local treatment of any kind is positively injurious. He must, however, in this very group of cases, be most wary, recollecting that hysterical women are as equally liable as the well to have pelvic inflammatory ailments.

Morphine must never be used in treating dysmenorrhœa.

Dysmenorrhœa, depending upon tumors and inflammatory disease, must be relieved by treating the disease and not the symptom.

Dilatation and curretting benefit a large percentage of cases which are uncomplicated by other diseases, and even cures in a small percentage. Ablation of the appendages is proper in rare cases of extreme and persistent dysmenorrhœa, as well as for some intractable cases of membranous dysmenorrhœa.

XVI. Discussion on Menstruation and its Abnormalities.

5. Irregular Menstruation.

By E. W. CUSHING, M. D.,
BOSTON, MASS.

In considering the question of irregular menstruation I find myself somewhat embarrassed by the limitation of my part of the whole question, for I must avoid treating of profuse menstruation on the one hand and of scanty menstruation on the other, while, to be strictly accurate, what is really menstruation is not irregular, and what is quite irregular is not menstruation. I find myself, therefore, occupying as it were a geometrical point, which has position but neither length, breadth, or thickness; if, therefore, I am to consider the subject at all, I must trench on the province of all the other speakers, in spite of the adjurations of Dr. Currier.

In the first place we have to consider the irregularities which attend the establishment of the menstrual function at puberty. These are sometimes so severe as to demand active treatment owing to the profuseness of the hemorrhages, but more often we are called to give advice concerning scanty, delayed, or omitted menstruation.

A certain amount of irregularity at this period of life as well as at the menopause is so common that it may almost be considered as regular, and it is only special cases which come under the care of the physicians. Where the menstruation is precocious or excessive it is well to consider whether the girl is leading a life as quiet and free from excitement as should be the rule at such a time, while on the other hand when the discharge occurs only occasionally and at irregular intervals care should be taken to avoid undue confinement in school and over-study, and to enjoin such an amount of good food and exercise in open air as a young girl ought to have.

It is obviously impossible within the limits of this paper to say any thing more in regard to the treatment of the irregularities of menstruation, for, as stated above, the only treatment required is for profuseness or scantiness, for continuous duration or total absence of the flow, and all these questions are to be considered by other speakers; the only point left for me to consider appears to be the differential diagnosis between irregularities of menstruation and various other bloody discharges from the vagina which are usually supposed by the patients to be of a menstrual nature, so that for this reason the early stages of very serious maladies are often overlooked. First in frequency and in importance come the sudden and violent hemorrhages at or about the menstrual epoch, or the total suppression of menstruation, due to inflammation of the uterine appendages, and of the fundus of the uterus; these attacks are usually attributed by the women to "catching cold," and sometimes this appears to be the cause, or perhaps we should say more properly the occasion which allows various infecting organisms to excite inflammation of the uterine and tubal endometrium. It is unnecessary here to describe further the long train of troubles which may follow such an attack of pelvic inflammation, troubles which are liable to be associated at all stages with irregular or painful menstruation.

Next in order we may consider the irregularities of menstruation associated with subinvolution of the uterus, running on into fungous endometritis; usually in these cases all sorts of medicines have been taken without effect until some one makes a diagnosis and adopts the proper treatment, as a rule of a surgical nature.

One of the most important affections, of which irregular menstruation is a symptom, is extra-uterine pregnancy. This con-

dition is certainly very much more common than was heretofore supposed, as is shown by the large number of operations which are now performed to relieve it. Probably a large proportion of cases of hæmatocele should also be considered as due to extra-uterine pregnancy. Now in almost all cases of this affection the first symptom observed is irregularity of the menstruation. It sometimes ceases entirely as in ordinary pregnancy, but more often it is diminished, or is missed once and returns afterward, but not just at the regular time, or there is a more or less continuous escape of blood, often accompanied by discharge of decidual membrane, and complicated by pain, so that the patient does not know whether she is really pregnant or not. Of course in all such cases the diagnosis is of the utmost importance, and that being made, the proper treatment can be at once adopted.

During the middle period of a woman's life, especially if she is married and the mother of a numerous family, the rapid succession of pregnancies, with the various accidents and sequelæ of parturition, together with the care and labor of the household and the conditions and relations incident to married life, make a certain amount of menstrual irregularity so common that the women hardly notice it, or trouble themselves about it, and when there is sufficient loss of blood, or pain, to lead them to consult a physician the diagnosis is the main question, and it certainly is the duty of the physician to find out what is the real nature of the affection, instead of simply prescribing ergot or hydrastis or some other customary remedy. At any rate, if such medicines do not act promptly, and if inflammatory disease, or the condition or results of pregnancy, can be excluded, there is grave reason to suspect organic disease of some kind, such as fibroid tumor or cancer. Although neither of these diseases is strictly limited as to the period of life in which it appears, yet we see myoma more often in women under fifty, cancer of the cervix in women from forty to sixty-five, and malignant adenoma which degenerates into cancer of the body of the uterus, seldom under fifty.

It would seem self-evident that the way to find out whether a woman has a myoma or a cancer is to examine her carefully and thoroughly, and yet I am pained to say that in many cases a great deal of time is lost, either owing to the refusal of the woman to submit to examination or to the neglect of the physician to insist on making it. Here, again, a certain blind faith in the power of

medicine,— an easy routine,— or a want of appreciation of the importance of the subject, very often leads to the loss of much valuable time.

The diagnosis of myoma is not always easy. It is most apt to be confounded with hard inflammatory masses, with malignant disease of the fundus uteri, or with ovarian growths, especially adherent dermoids, which displace the uterus. This is not the place to go further into the question of diagnosis, still less of treatment. As soon as the diagnosis is made, the supposed menstrual irregularity becomes the symptom of a definite disease, and can be treated accordingly.

If the failure to make an early diagnosis of a myoma is annoying, the failure to discover a cancer in its early stages is a disaster,— a neglect which is well nigh criminal. And yet how many lifes are trifled away for want of a diagnosis! How many women are dosed for months for irregular menstruation without any examination! How many are treated for "ulcerations" for weeks, until the disease has spread so that it has gone into the lymphatics beyond the possibility of entire removal! How many women, instead of consulting their physician, run about among their female friends and are assured that it is "only the change of life" which causes their irregular hemorrhages. Nevertheless there is seldom any real difficulty in diagnosis of cancer of the cervix. If there is an old laceration, with ectropium and glandular growth of the cervical lips, the appearances may resemble carcinoma, and, on the other hand, the latter disease may for a time resemble or be engrafted on the former. Yet it is easy to scoop or cut off a piece large enough for microscopic examination, and, in fact, it may be accepted as a rule with few exceptions that where a piece of the cervical tissue can be scraped or broken off with the finger-nail the disease is to be regarded as malignant, and measures are to be taken at once in accordance with the nature and gravity of the affection.

Somewhat more difficult of early diagnosis is malignant adenoma of the uterine body, which usually first makes itself known by uterine hemorrhages, not profuse, but persistent. As this affection generally commences after the menopause, it would hardly be a subject for consideration here were it not for the fact that the women are prone to regard the bloody discharges as a recurrence or renewal of menstruation, and they are often, in

fact, rather proud of the prolongation of their uterine functions. The diagnosis is by the microscope, after curetting; the cure is hysterectomy.

It must moreover never be forgotten in studying the causes of irregular menstruation that they may lie far from the uterus or its appendages. Thus, menorrhagia may depend on disease of the heart, on violence of the emotions, on sexual excitement, etc. Amenorrhœa may depend on imperfect development, on incipient phthisis, on homesickness, change of climate, anæmia, sorrow, etc.

It is impossible to do justice to such a subject in fifteen minutes, and, if I may sum up all in a few words, I would say that in all cases of irregular menstruation we should search out the cause of the trouble, and if possible remove it.

"Sublata causa tollitur effectus."

XVII. Discussion on Menstruation and its Abnormalities.

6. Menopause: Natural and Artificial.

By A. W. JOHNSTONE, M. D.,
CINCINNATI.

The close of the nineteenth century will see the emancipation of the uterus from the thraldom of the ovary. For generations it has been taught that the ovary was the center around which the woman revolved, and that the uterus was a mere appendage to it. Now, however, we know that they are independent organs, each having a separate nerve control, which centers back in the sympathetic plexuses and the spinal cord, thus removing them from the class of physiological monstrosities and putting them in their proper place as ordinary functional organs controlled by the nerve system in general. The greatest discovery which the century has seen is that of Stevenson's law. Without it to-day the physiology of the reproductive organs would be in an inextricable tangle, and it marks the same era for gynæcology that Harvey's discovery of the circulation of the blood did for general surgery. As I understand, I speak to a body of general practitioners; many of you may have overlooked it, and, as you cannot understand the menopause without it, I must briefly relate it to you. That you may understand it best I must refer you to a parallel case in the

nerve system. I refer to the every-day occurrence of sleeping and wakening. During sleep there is a complete anæmia of the brain, during waking hours there is extreme congestion of the brain, thus showing the marked alterations in the blood pressure of the brain between these two conditions. During sleep there is only enough blood in the brain to nourish it, but the activity of the cells demanding a much higher grade of nutrition, a larger quantity of blood is poured in during waking hours than in the resting and recuperating state. While we are asleep the body and limbs are decidedly larger than they are while we are awake, this proportion being the difference between the quantity of blood which is either present or absent from the brain during these two states. Thus, you see, there is a regular wave, which runs its cycle in twenty-four hours, one of rest and the other of activity, and must recur in its proper rhythm in order to the well being of the individual. Just as in sleep, into the economy of the human female we have an additional wave introduced, whose cycle instead of being twenty-four hours is extended to twenty-eight days. The acme of its pressure is just as the menstrual flow begins, the trough of the wave is shortly after it is over; then a long low tracing for three weeks, which is not appreciably increased until the beginning of the fourth week; then a rapidly increasing pressure in the pelvis finally ruptures the vessels, and the menstrual flow begins. This is not all, though, that Professor Stevenson has proved by delicate dynamometers. He has proven, in addition to the blood wave, closely associated with it, is a urea wave and a carbonic acid wave; while not exactly corresponding to the blood pressure, like the tide and the moon they are closely associated. About two or three days before the period comes on there is an increased oxidation, which burns up the material in the mother's blood which was put there to nourish her offspring, and it shows itself in the ash of the carbonic acid and urea, thus proving that old saw, that a woman's normal state is pregnancy. During the child-bearing age she is prepared to take care of another individual besides her own personal economy, but that stranger failing to come, the material must be gotten rid of, and nature does it in two ways: by the increased oxidization just spoken of, and by the passing off of the hot-bed lining the uterus, where it was to be nourished. This, gentlemen, is all that menstruation means.

The tangible and perfectly apparent flow is by no means all of menstruation. There are more albuminoids gotten rid of by the increased urea and carbonic acid discharged than the flow itself amounts to. All that the flow is for is to get rid of the over ripe material, which was placed there to nourish the fœtus. This work is done, in the lower animals, by the lymphatic stream; but in all erect viviparous animals, the uterus, to retain the proper axis of the body, is forced to be made of very tough tissue so it could depend on itself alone for retention of its shape. Through such tissue lymphatics could make but slight headway. The consequence is, nature's only alternative is to turn a stream of blood through it and wash it away, and that is all that the flow means. But mark you, that while this apparent discharge is going on, which only rids the uterus of the material which furnishes the lymph for the first three months of life and the placenta for the last six, much more material in the form of albuminoids, which the mother is constantly carrying with her, is also breathed out through the lungs and passed out through the kidneys, to be replaced again as time goes on, so that the woman is always ready for a child. This is the condition of the child-bearing woman. The little girl has no such wave; it is introduced into her economy at puberty. It comes on gradually, heralded by the growth of hair in the various parts of the body and all the other approaching signs of adolescence. A close observer, in watching little girls, will often see the flushing, undue excitement and unusual irritability, which means nothing more nor less than the first little ripple of this wave rolling through their system. This becomes more and more intense, until finally the full-grown woman takes her place.

What I am here especially for is to talk upon how this process ceases. From sixteen to forty-five is the best part of everyone's life. The digestive organs are in their highest state of development, the blood-making power is at its greatest; in the mid-day part of life an individual is prepared best for the struggles of existence, and consequently is in the best condition for reproduction. As time goes on the bones not only become completely ossified, but even calcareous; the liver, the spleen and all of the other blood-making organs begin to show the wear of life. The silvering hair, the toughening of the connective tissue shown by the wrinkles in the face, all mark the passage of the noon-tide glory,

and the economy must begin to get ready for the chilly blasts of the evening of life. Here nature comes in as a great conservator and puts a stop to this additional work of the digestive organs, to this preparation of food for another individual. For from this time on it is about all that the blood-making power can do to supply the needs of the individual herself, and the conservation of forces must be accomplished and the relief from waste, which under stronger conditions the organs could easily carry. The first positive mark of this is the wearing out of the endometrium, for it, like the thymus gland, is nothing more nor less than an adenoid structure, and, like Peyer's patches, at the same time it sinks into a worn-out condition. The place, where before was so much activity, where tissue was so rapidly formed, where the giant cells so easily sprang from the lymph corpuscles, is marked only by old cicatricial fibrous tissue, and like all other adenoid structures it sinks into quiet decay. The nerve system begins to readjust itself, but no longer having the free outlet through the soft juicy lymphoid tissue of the uterus, the wave pressure meets with resistance and a choppy sea is the result. The physical expressions of this are the hot and cold flashes, of which so many of our friends complain, the vertigoes, the headaches, the bilious attacks, which are nothing more nor less than the reflex waves which were once wont to find outlet through the uterus, which now, by its hardened condition, are thrown back to wherever the least resistance may be found. This usually takes out its force on the weakest organ of the individual; so that in the dyspeptic woman the indigestion would be markedly increased, one who had been subject to headaches may have them at erratic times, one who has been accustomed to diarrhœas may have them come in the most inexplicable way. Whatever the hereditary vice has been would be almost sure to be aggravated by this irregular breaking of the wave. Is it any wonder, under such physical conditions, that the brain having an hereditary taint may give away under this irregular pounding, and could we expect any thing else than that weakened kidneys, which have stood the brunt of life while the waves of their sea came regularly in, may now show positive signs of Bright's Disease? The most beautiful demonstrations of the proof of this condition is the menopause diabetes. You all remember the class-room experiment, that increased pressure of the floor of the fourth ventricle will bring on a temporary glyco-

suria, and we see it as plainly in our everyday practice as though we had the animal on the experimental table. The picture of the menopause is as varied as are the family histories of our patients. Some, like a good staunch ship, sail steadily into the harbor before a light breeze, swing gracefully around to the anchor, drop sails and settle to rest. No trouble, no disturbance, no any thing, but a beautiful afternoon of life stretches out before them. Others, like storm-tossed barks, come in ragged and tattered, battered and bruised, scarcely able to reach their anchorage, but once able to reach the still waters which are beyond, sink quietly to rest, and go on comfortably after they have crossed this chop sea of the last few years of their menstrual life. Others again though, after almost reaching the end, run on a rock, or some weak spot or tear which they have been carrying across this storm-tossed ocean widens into a leak, and they go down in sight of land. There is nothing specially mysterious about it, and when studied in the light of Stevenson's wave, these many and varied phases of the menopause are as explicable as any other physiological process which we now thoroughly understand. All that we have to do for our patient is to watch these weak spots, if possible to stop these leaks, help her over the bar and pilot her safely into the calm water beyond, for we know sooner or later the nerve system will tire of this ineffectual effort to bring on the menstruation. Like the amputated limb, in which the irritable nerves in the stump sooner or later will probably let go, the menstrual nerves will be destroyed and the economy will sink into the quiet afternoon of life. All we can do is to stand by, like honest pilots, and pour oil upon the waters and assist the laboring craft, and, if possible, carry them safely over hidden reefs to their anchoring ground; but, in spite of all our efforts, a few of them carry the seeds of destruction in themselves, which open the way for the turmoil of these breakers to cause incurable mischief. So much, then, for the natural menopause.

When we come to speak of the artificial, all that I have to say is that we now know pretty well where the nerve supply of these organs lies, and that when the generative organs have proven themselves utterly useless, and, by lesions within themselves, they become not only dangerous to life but impediments to usefulness; all that we have to do is to cut these nerves. This is nothing

more nor less than the old experiment of the destruction of the chorda tympani when we wish to paralyze the sublingual gland. Just where the menstrual center lies no man can say absolutely to-day. It is probably a mixed center, being composed of cerebro-spinal and sympathetic nerves. Branches coming from the lumbar plexus and the sacral plexus unite with branches from the solar plexus, and they, in turn, have ganglia deposited along the route, deep down in the base of the broad ligament. From there branches arise not only to the ovary but to the tube and uterus. The main ones to the uterus, the large trunks, which I have described, enter at an acute angle into the body of the uterus directly under the fallopian tube. To destroy all these nerves we have to take as much of the broad ligament as possible. My habit is to transfix the broad ligament as low down and as close to the uterus as I can get without interfering with the ureter, and then with a Staffordshire knot, or any other that you may use, to embrace the outer edge of the broad ligament with one loop, and to come directly over the junction of the tube and uterus with the other. It is not necessary, when this knot is drawn firmly home, to cut the broad ligament too short. It is my rule to take off its top with many snips of the scissors and not with one sweep, shaping a rounded button out of what is left of the broad ligament, so that it will be thoroughly everted, so the proximal and distal peritoneum will meet over the ligature and leave it in a buried surface, thus preventing any possibility of the ligature slipping. My rule is to use the smallest silk that will stand my strength, and to tie twice around the stump, thus avoiding leaving a large quantity of foreign material to be dealt with by the peritoneum.

That these conclusions are true, that the ovary has little more to do with menstruation than the liver has, I am sure. The time allotted me is too short to admit of more than one or two proofs of my belief.

The first ovariotomy I ever did was for a left-sided large cystoma. The right ovary was healthy and was not removed Two years afterward the woman gave birth to a healthy child, that is now living. Eighteen months after this she had an extra-uterine pregnancy of the right side. It bursted into the right broad ligament, and after some three weeks of suffering the sac was emptied of about a quart of grumous fluid. The woman was

then twenty-eight or thirty years old, and although it has been ten years since, no signs of menstruation have followed. Thus, I know the woman ceased to menstruate after having a thorough destruction of the only remaining menstrual nerves of which she was possessed, though the ovary was still in place and must have been healthy as she had two pregnancies after its examination in the ovariotomy of the opposite side. Many other cases you can all recall where pieces of ovaries have been left and still the woman did not menstruate, but it would take me too far afield to call up all these instances. Almost every operator here, if he will think carefully over his cases, can recollect such. Do not understand me, though, to say that it is good surgery to leave a part of the ovary when you are doing these operations. It is by no means a unique experience to find an ovarian cyst developing in the stumps so left, thus necessitating the second laparotomy. A case I have just had, though, is one of the most striking: — After the appendages had been removed by another operator, the patient fell into my hands, still menstruating as regularly as ever. After doing all in my power to cure her by curetting and attention to her uterine and vaginal infection, she finally developed a lump on the left side of the uterus. This at the second laparotomy I found to be composed of about three inches of the tube, which had been left at the last operation. The removal of this has cured the patient.

In closing these remarks the one key note that I would give you is to study carefully the Stevenson wave, for without it no man can intelligently practice gynæcology. By it the vagaries of hysteria, uterine reflexes and many hitherto inexplicable enigmas, become as plain as a printed page, and with it we can as successfully unravel our troublesome cases as the old time surgeons could the enigmas that were elucidated by Harvey's immortal discovery.

XVIII. Discussion on Diphtheria.

1. The Pathology of Diphtheria, Status Præsens.

By THOMAS E. SATTERTHWAITE, M. D.,
NEW YORK.

The title of this paper as it has been given me for the purpose of introducing this discussion, intimates that I am to present you with recent facts bearing on the morbid phenomena of the disease. But it also suggests (and I think very properly), that the ground it occupies is somewhat uncertain. This all will admit. But I desire to emphasize the point because it is difficult to state the evidence at hand with fairness, even when one intends to be free from individual bias.

In this country pathology is commonly understood to include both pathological anatomy and pathogenesis, while the latter also includes the causation of disease. These are all broad subjects. Fortunately, the pathological anatomy of diphtheria affords us little ground for difference of opinion. It has been well studied and the matter was practically closed many years ago. But the pathogeny of diphtheria, and with it as I have said, the etiology (for they cannot be disassociated), are still under active discussion, though the work of the last few years in Berlin, Paris, New York and Baltimore, has cleared up a number of doubtful points. The importance of understanding the pathogeny is very great, for if diphtheria is shown to be a contagious disease, propagated by a peculiar bacterium that can be readily recognized and distinguished by the microscope, then we have made a great stride in diagnosis, and can inaugurate both preventive and curative methods in a way that has heretofore been impossible.

I may here premise that the evidence at hand is to the effect that the bacillus, known as the Lœffler bacillus, is the cause of *true*, *genuine* or *primary* diphtheria; but that there is also a *false* diphtheria which may be called *diphtheroid*, in which the diseased tissues have a bacillus similar in appearance, though without pathogenetic qualities; that diphtheria is, therefore, a contagious disease (almost wholly so from a bacteriological point of view); that the Lœffler bacilli retain their virulence in a

remarkable manner, generating also a soluble material that has similarly virulent properties, while finally another soluble substance, known as an *anti-toxine*, can be extracted from the blood of convalescents and immune animals, which may be regarded both as a protective and a curative agent.

So far as the pathological anatomy of diphtheria is concerned, its main features will now be briefly stated. The disease is characterized by the formation of a membrane in the upper air passages, the throat, larynx and bronchi, the posterior nares, and sometimes the anterior nares; while any mucous surface in the body can also be attacked, or even the skin, if it has been abraded, as in the case of a sore nipple or burn. But the mere presence of a membrane does not indicate dipththeria, and even a pathologically diphtheritic inflammation may attack a mucous surface, the conjunctiva, for example, though the patient have no diphtheria.* In this connection it will avoid some misunderstanding if I say that our German friends use the word *diphtheritic* to indicate that an exudation is attached more or less deeply to the tissues, while on the other hand, they use the word *croupous* to indicate that it rests on the surface, from which it may be separated without affecting the integrity of the underlying parts. These, therefore, are *conventional* terms, but have long been in use on the other side of the water, where, I presume, they will continue to be in use.

But while the membrane is a characteristic of diphtheria, it is not an essential characteristic, and the exudation on the surface may be catarrhal or serous; or gangrene may replace the membrane. An interesting illustration of this point has recently been given by Concetti†, where an infant was found to have diphtheria bacilli in the mucous of the pharynx, but a membrane was not found until eight days later; and he has on several occasions found these bacilli in slight cases of pharyngitis, and exceptionally in fatal cases, where no membrane at all developed. Further bacteriological studies have confirmed the opinions of those pathologists who have held that there was no structural difference between the membrane in membranous croup and diphtheritic laryngitis. Personally I have never been able to see the difference between the two. Whatever name you may choose to

*My friend Dr. Theobald Smith reminds me that there are diphtheritic exudations in hog cholera.

†Concetti, Centralblatt f. Bakteriol., 19, 1893, p, 629.

give them, the membrane in either case is attached at some points and is free at others, for reasons that were given many years ago by A. Jacobi. As a rule, it is a fibrinous exudation similar to many others found in various morbid states of the system. But I do not see any objections to the old theory as stated by Oertel* that some sort of a membrane may be created by the necrosis (coagulation necrosis or hyaline change)† in the superficial layers of the epithelial cells, in some cases, but I must maintain, from my personal knowledge and frequent examinations of microscopic sections of the membrane *in situ* in the larynx and bronchi, that it can be shown to rest upon the topmost layer of epithelial cells, for I have seen the cilia of the cells beneath the membrane, and quite unaffected by the membrane lying on them.‡

As a rule, diphtheria is first seen either upon the tonsils, the uvula or pharynx, as a "fiery red" inflammation. From these points it spreads to internal parts, attacking this one or that, or several together, or a group or groups of muscles; one branch or several branches of the nervous system; some part of the vascular apparatus or genito-urinary tract. There is no reason to suppose that any part of the system is free from danger. Points of election are the muscles of the soft palate, the constrictors of the pharynx and some of the laryngeal muscles, thus causing regurgitation, imperfect deglutition, or embarrassed speech. Other muscles notably involved are those of the lower extremities of the neck and the sphincters. The muscle substance, when affected, exhibits ecchymoses, perhaps degeneration and atrophy. Any portion of the nervous system, and even the brain, may be attacked in several ways. Here may also be endocarditis or myocardial change. In a recent case reported by Howard,§ a laborer, forty-four years of age, and previously of good health, died after an illness of twenty-four days, of heart failure, and at the autopsy he was found to have had acute ulcerative endocarditis of both the mitral and aortic valves, and degeneration of the myocardium. On the surface of the ulcers were numbers of bacilli, while a thrombus that was stratified and adherent to the ulcerated surfaces was largely composed of bacilli. Similar bacilli were also found in the thrombi of the spleen and kidneys. And yet it is

* Oertel, Ziemmsen's Handbook, vol. 1, 1874, p. 587.
† Weigert, Virchow's Archiv, XXIX, p. 87.
‡ Quarterly Jl. of the Post. Grad. Med. Sch. and Hos., No. 1, 1885.
§ Howard, W. T., Johns Hopkins' Hosp. Bull., 30, 1893.

true they had no pathogenic effect when cultivated and inoculated upon guinea pigs and rabbits. But these few negative experiments do not necessarily upset the theory that the disease was diphtheria, for inoculation experiments upon animals with the most virulent matters do not always succeed, and rabbits and guinea pigs are specially ill-suited for inoculation with diphtheritic virus. Death is not uncommon from heart failure, but it is in most instances from acute degeneration of the myocardium. It will then be found that the right ventricle is distended with blood, as also are the venæ cavæ.

If the disease extends down the air passages, and it does so in about one-half the cases in severe epidemics, there will be, in turn, laryngitis, bronchitis, and perhaps bronchical pneumonia, with more or less pulmonary collapse, and effusion of blood and serum. Bronchial pneumonia is not an uncommon cause of death.

Below the diaphragm, all of the organs will show parenchymatous change, if there is profound constitutional disturbance — the liver, spleen and kidneys. And they will be congested, whenever by a pulmonary or cardiac complication the lesser circulation is interfered with. For the rising column of venous blood, unable to get into the lungs, is backed down upon the organs in and adjacent to the abdominal cavity. To return for a moment to the membrane; the larger and thicker it is, the more severe, as a rule, the attack. When it is deeply attached and separates, it may leave an ulcerated sloughing or gangrenous base, with more or less infiltration of the underlying parts, and implication of the neighboring lymphatic glands. The great weight of evidence tends to establish the belief that it is at first a local disease, and that the constitutional infection is a secondary affair.

And now, having reviewed our pathological anatomy, let us look into our pathogeny. It will be convenient for me to take up this matter where I first studied it in the years 1874 and 1875, when, in conjunction with Dr. Edward Curtis, pathologist of the New York Board of Health, we made about a couple of hundred experiments on the subject, mainly in the line of Oertel's* work that had been published in 1871. Our report was published in 1877.† In the nine propositions that we submitted as the result of our

* Oertel. Loc. cit.

† Curtis & Satterthwaite's Report of Investigations on the Pathogeny of Diphtheria. New York, 1877. Published by the New York Board of Health.

work, we laid stress on the belief that "the poisonous" quality (in diphtheria) inhered in some particulate thing.

It should here be stated that Oertel had described various forms of round and rod-shaped bacteria in the membranes, but thought the former caused the disease. Oertel's work was most elaborate, and had created a profound sensation in medical circles, abroad and here. The work of the next thirteen years, however, resulted in relegating these spherical microzymes to a position of inferior importance, and Cornil, the well-known French histologist, insisted that they were identical with the micrococcci of pyæmia. And the almost universal opinion now is that they are in some way connected with suppurating processes.

About ten years ago Lœffler called attention to a bacillus which he thought existed in the membrane only. It had a length of from 2.5 to 3 micromillem. and a breadth of from 0.5 to 0.8 micromillem. He thought it had no spores, but Babes now claims he has seen them, and says they are large and bright, and can resist a temperature of 100 C. The bacilli are quite irregular in shape, and do not stain evenly. Usually they are straight or slightly curved. Sometimes they are dumb-bell shaped. There are but three ways of demonstrating them. One by the cover glass method, that is applicable for bedside or rapid work; by cultures in suitable media; or by inoculations on susceptible animals. It is apart from the purpose of this paper to describe these methods, for they are to be found in all the recent text-books on bacteriology.

But there are opportunities for error that are numerous, especially for one who has not been carefully trained in this delicate work. Through faulty technique the bacilli may not be stained, or they may have disappeared from the membrane. Or they may be confounded with several other varieties of bacteria. These chances for error lessen in proportion to one's increase in bacteriological experience, and also as one goes on to culture and inoculation on animals, the latter test being the one on which we should place the most reliance. But how greatly even practical bacteriologists have differed as to the importance of these tests may be gathered from a few facts.

In 1888–90 Roux and Yersin found the Lœffler bacillus in only seven cases out of forty-three admitted into hospital for diphtheria, 6%. But it is quite apparent that they used the word diph-

theria in a loose sense, and that many of the cases were in no respect diphtheritic. But a prominent New York observer,* in the year 1889, failed entirely to find them in twenty-four cases, though afterward it appeared that some of the patients had measles and scarlet fever as complications. But later investigations have tended almost universally to sustain Loeffler, and the same American observer† just alluded to has, in a later paper, embodying the results of newer work given in his adhesion to Lœffler's later views.

Three more citations from the best laboratory work in Berlin, Paris and New York will show how the matter stands to-day. In 1892 Bajinsky‡ made rapid microscopic cover-glass examinations in 154 cases turned over to him as diphtheria, and found the Lœffler bacillus in 78%. In the same year, but a little later, Martin,§ of Paris, made cover-glass examinations of 200 children, sent to his hospital, with a clinical diagnosis of diphtheria. The Lœffler bacillus was found in 64%. He usually found it at his first examination. But he noted three things: That when the larger bacilli were found, they usually indicated a severe type of the disease; smaller bacilli, a mild form; while smaller bacilli in conjunction with certain streptococci, or chain-bacteria, might indicate a very virulent form. A recent New York worker ‖ of large experience in bacteriological work, who has furnished us with the latest information on this point, tells us that out of 159 cases examined, he found the Lœffler bacillus in 54, or 34%. From these three sources, then, we get an approximate idea of the present value of the bedside test, as viewed from the standpoint of the bacteriologist. He would be apt to find it in from 34% to 78% of the cases clinically named as diphtheritic. This view tallies with that held by my friend, Dr. R. H. Fitz, of the Harvard Medical School (as communicated to me by letter), and it is evidently a safe and conservative groundto occupy.

At the same time my friends, Drs. M. P. Jacobi, Welch, of Baltimore, and Theobald Smith, of Washington, write me that they expect to find it is at least 75% of true diphtheria, while Dr. L. Emmett Holt tells me that he believes "the bacillus will be found in 95% of the cases of true diphtheria," and adds, "in my own

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* Prudden, Am. Jl. of the Med. Sc. (May, 1889), p. 328.
† Med. Rec., April, 1891.
‡ Bajinsky, Berl. Klin. Woch., Feb., 1892, p. 183.
§ Martin, Annales l'Institut de Pasteur, May 1, 1892, p. 332.
‖ Park, Med. Rec., July, 1892.

hospital cases it has been found almost invariably at the first examination." So that a goodly proportion of our ablest men confidently expect to find the Lœffler bacillus in from 75 to 95% of their cases.

But in view of what will appear hereafter, and the recently observed fact that the bacillus will sometimes suddenly disappear out of a membrane, a variation in frequency even between 34 and 95% is quite intelligible; nor does it in any way weaken the position taken by Lœffler that it is, primarily, the cause of true diphtheria, though it greatly lessens its value as a diagnostic criterion in any one case. Some points in the life history of the bacillus are now to be noted. At a temperature of 37 C. it will retain its virulence for seven weeks; in dried membranes it will live for nine to fourteen weeks; it may be potent even if taken from the throat three weeks after the cessation of the fever; at 18 to 20 C. it will grow in some media; at 20 C. in milk; in agar it will survive seven months; in glycerine it has lived 331 days (Lœffler), and according to Abel,* much longer.

And now as to a newer phase of the bacillus matter: It was at first held that the Lœffler bacillus did not penetrate the tissues except, perhaps, in the immediate vicinity of the membrane. During the year that has just passed, this view has been overthrown. It is true Davier† had noted bacilli in the lungs in 1885, and Martin‡ had seen them in a case of bronchial pneumonia of diphtheritic origin, but Frosch last year§ found them in internal organs in ten out of fifteen examinations. Now American workers ‖ have established this point conclusively, Abbott and Ghriskey finding the characteristic bacilli in leucocytes aggregated together in and about the mesentery of guinea pigs killed by inoculation over the belly and testicles with pure cultures. Flexner was able to confirm Davier and Martin's statements; and Howard, ‖ as already stated, even found the Lœffler bacilli in and about the mitral and aortic valves of a man who died of heart failure.

Before concluding this part of our topic which relates to the etiological relation between bacteria and diphtheria, it will be

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* Abel, Centralb. f. Bacteriol., 23, 1893.
† Davier, These de Paris, 1885.
‡ Martin, Loc. Cit.
§ Frosch, Zietschr. für Hygein. III, p. 49, 1893.
‖ John Hopkins' Bull., 30, 1093.

proper to allude to the problematic connection between certain other microzymes and diphtheria. And these are the so-called pyogeni streptococci and staphylococci. Both of these forms are found in the mouths of healthy people but they are unusually common in the angina of measles and scarlet fever, and there is an idea that the contemporaneous association of one or the other of these microzymes with the attenuated bacilli will produce a virulent form of the disease, that the bacillus alone could not evoke; and the Italian observor, Concetti,* has gone even so far as to say that, although he could produce genuine diphtheria in pigeons, at least, by the inoculation of the Lœffler bacillus, he could do the same by inoculating the pneumococcus, streptococcus and staphylococcus, though, on the whole, the latter gave a more favorable prognosis. It should be stated, however, at this point, that the diphtheria of pigeons appears to be unlike that of the human species.

But now we come to a serious question. From the time that Lœffler first called attention to his bacillus to the present moment, all prominent bacteriologists have found bacilli that were morphologically similar, but non-pathogenic. The Paris observers, Roux and Yersin, found this bacillus 15 times in 45 children, that did not have diphtheria, 33%. Among 59 healthy children in a village school, he found them 26 times in 44 examinations, 79%; in five out of seven cases of measles, 71%. In 1891 Abbott examined 53 patients with ordinary catarrhal affections of the upper air passages. In 49 he found ordinary bacteria, chiefly the pyogenic micrococci. In four, or 7.5%, he found the non-pathogenic bacillus. But Park in 159 cases found it only once.

However, the existence of a non-pathogenic bacillus is now generally admitted, but, as will have been noted, American workers have found it so infrequently, that (here at least) it has not been a very disturbing factor in our diagnoses. And if, as I have said, we should expect to find it in from 75 to 95%, we may also as truly expect it to be absent in some cases, if the report of Tecenas de Montcel† is confirmed, for in 50 cases of true diphtheria he found the bacillus disappeared in 6, or 12%, after the second or third examinations.

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* Concetti, Centralbl. f. Bakt., 19, 1893.

† Tecenas de Montcel, Prov. Med., 21, 1893.

I cannot here take up a further discussion of the non-pathogenic bacillus, except to say, that in respect to cultures in suitable media, it has a similar growth to the Lœffler bacillus, though the latter develops in 12 hours in the incubator, while the non-pathogenic takes from 24 to 72 hours. Other differences have been given, but the general impression is, that the differences between the two are in *degree* rather than in *kind*. On the other hand inoculations of the cultures of non-pathogenic bacilli produce no result, unless there is an admixture with other pathogenic microzymes.

Inoculations should be practised, however, on susceptible animals, of which kittens and puppies and chickens stand in the first rank — and the trachea duly irritated should be the point of election. For we have good reason to believe that these lower animals have the same sort of diphtheria as the human species and that the disease can be contracted from them by direct contagion.

But now we are to take up a still more practical phase of the matter. About the time that Lœffler published his earliest views on the bacillus of diphtheria, Theobald Smith* in conjunction with Dr. Salmon, of Washington, following somewhat in the line of work inaugurated by Gautier, of France, and Selmi, of Bologna, found in the hog cholera virus, not only a special microphyte, but also a peculiar substance elaborated by it, and capable of producing the disease. I had myself anticipated, in my own mind, this discovery, by an experiment conducted as early as 1876 (Mar. 28). In conjunction with Drs. Frank P. Foster, W. F. Cushman, and Wm. H. Lawrence, I had assisted in the inoculation of a heifer with pure vaccine lymph, intimately intermixed with salicylic acid, in the strength of 1 to 250, a strength sufficient to destroy the activity of all bacteria in the mixture. But, notwithstanding this, five pocks appeared in April 4, while on the other hand two out of four of the controlling experiments made with pure lymph at this point on the same animal were a failure.† Hence in this case the poison could not have resided in any ordinary bacterium.

Now, Hankin,‡ in 1889, while engaged in the study of anthrax had obtained an albuminoid substance which, inoculated upon susceptible animals, protected them from disease. And in the

*Smith, Proceedings of the Biol. Soc. of Wash., Vol. III, 1884-6.

†Curtis & Satterthwaite, Loc. Cit.

‡Hankin, Brit. Med. Jr., I, p. 810; Centralbl. f. Bakt., 6, 1889.

diphtheritic virus there is also such a substance, which quickly decomposes and is destroyed at a temperature of about 50 C. It is also insoluble in alcohol. If concentrated and dropped into absolute alcohol, to which a little acetic acid has been added, there will be thrown down a greyish-white flakey deposit, which is soluble in water, but is precipitated again by alcohol. After this precipitate has been dried in a vacuum at 70 C. it forms a snow-white amorphous mass. This substance is now classed as a *toxalbumin.* It appears to be derived from the bacteria, though some hold to the idea (without reason, I think), that it comes from the animal tissues. Recent experiments in this matter by Martin* and others appear to indicate that the toxic power of the albumin is slight, when the culture has an acid reaction; virulent when it is alkaline. The virulence is reduced by exposure to 58 C. for two hours and removed by boiling at 100 C. for twenty minutes.

We now pass on to another step which was made by Behring, an assistant in Koch's laboratory. In 1891–2 he found in the blood of immune animals a something non-bacterial, that neutralized the otherwise toxic products of the Loffler bacillus. What was it? Behring† held to the idea that the blood serum contained this *anti-toxine.*

About one year ago Drs. Klemensiewitz‡ and Escherich tested the theory by experiments on guinea pigs. They also succeeded in getting some blood from patients convalescing from diphtheria, and extracting the blood serum, found that it arrested the poisonous action of the diphtheritic cultures that had previously been inoculated upon guinea pigs.

But about nine months ago, Kossel§ was, so far as I can learn, the first to test this *anti-toxine* on the human being. During last March and April, 1893, eleven children were treated. Their ages varied from three to eleven. Four underwent tracheotomy. Of these four, only one died. Of the eleven, nine recovered. These cases were undoubtedly severe ones, but the mortality was light, and in the tracheotomy cases unusually light. In the previous year, in the same institution, of thirty-two cases only eleven survived. Hence a fatality of 65% under ordinary treatment, as compared to 18% under the anti-toxine.

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* Martin, Annals de l'Institut de Pasteur, Nov. 1, 1892, p. 335.

† Behring, Zeitsch. für. Hygein, Pa., 12, 1. p. 10; Behring, Deutsch. Med. Woch., Jan., 1893.

‡ Klemensiewitz, Centralbl. f. Bakt., 13, 1893.

§ Kossel, Deutsch. Med. Arch., April 27, 1893.

Efforts are now being made by Behring* to concentrate his blood serum or make an extract of it; while Aronson† claims that he has already succeeded in so doing, but has not had sufficient opportunity for testing it. And here the matter rests.

Now, while we appear to have all the proof that is requisite to place true diphtheria among the contagious diseases there is a difference of opinion, as to whether it may not also be authocthonous, that is, self-generating, or indeed miasmatic. Gottstein‡ concludes from his experience that if 100 susceptible individuals are exposed only 21 or 21% will take it, while in measles 99% would take it, and in scarlet fever 30%. The sources of contagion, whether direct or indirect, are known to be, primarily, the membrane as spit up or coughed or sneezed up, and so inspired or swallowed directly, or through the medium of infected garments, or instruments or vessels that have been contaminated by milk, or by flowers taken from the coffin of diptheritics. It is certain also that some of the domestic animals suffer from a communicable form of the disease. Probably both in them and in mankind it may be propagated from chronic cases or from convalescents after the acute stage has been passed. In this connection Dr. L. Emmett Holt's views are especially interesting and valuable. He wrote me: "Diphtheria is certainly much less contagious than measles, scarlet fever or small-pox. I have personally known of but two physicians contracting the disease from patients. In three cases only have I seen parents or nurse take the disease from children. I believe this to be very rarely the case if proper precautions, such as the regular use of an antiseptic gargle and nasal spray, are employed."

Physicians should bear in mind that it is one thing to establish the contagious force of a virus by laboratory experiments where all the conditions favor, and another thing to establish it in ordinary practice. Inoculations might produce a disease in 100% perhaps, where ordinary exposure might not produce it in 10%. Age and some acute throat affections are undoubtedly strongly very predisposing conditions.

There appears to be a diversity of opinion as to whether practising physicians should make cultures, or inoculate animals for the purpose of diagnosis. In this connection I shall quote from Dr.

* Behring, Deutsch. Med. Woch., June 27, 1893.
† Aronson, Deutsch. Med. Woch,, July, 1893.
‡ Gottstein, Berl. Klin. Woch., 25, 1893.

Theobald Smith, of the Bureau of Animal Industry, Washington, D. C. He writes me as follows:

"I think that no practising physician should attempt the diagnosis. Bacteriology is too complex a subject now. The difficulty would be not so much in recognizing the bacilli in an acute recent case, as in recognizing and differentiating the many other forms likely to appear in the cultures." * * * "The difficulties in differentiating species are becoming greater with every new one described, and any one who has spent much time with any group of bacteria knows of many gradations and variations which are likely to confuse the novice or the occasional microscopist."

Dr. Smith's views are those held by the majority of those most competent to give opinions in the matter, and they maintain that Boards of Health should not attempt to make such experiments compulsory on physicians. They maintain that work of this kind should always, if practicable, be done at some bacteriological centre, and then it should be revised by an experienced bacteriologist, if it is to have any practical value. And it is felt that the difficulties of establishing these centres are not unsurmountable. Certainly both humanity and science call upon us to favor these researches to the full extent of our power as physicians; but if we are to have the best results in the shortest time, we should endeavor to see that the material falls only into competent hands.

XIX. Discussion on Diphtheria.

2. Observations on the Diagnosis of Diphtheria and Remarks Relative to State Sanitation.

By A. WALTER SUITER, A. M., M. D.,
Herkimer.

The subject of my observations may seem to some to be in the nature of "threshing old straw," but I make bold to assert that our mission in this regard is not yet accomplished; and, moreover, I contend that the time is now at hand when proper advantage should be taken of the facts which scientific investigation has thus far satisfactorily demonstrated, both for the sake of the individual and in the interest of public protection.

I have been much impressed by the following observation in a very able article recently published (Park, *Medical Record*, Vol. XLIII, No. 6): "Though there are many interesting points in the subject of pseudo-membranous inflammations still needing further study, it is nevertheless true that the knowledge already obtained is far in advance of its practical application."

This applies with equal force to most if not all of the dangerous communicable diseases, and the statement conveys so much impressive thought as to fully warrant its quotation here. Indeed, the suggestions which I "read between the lines" furnish for me the motive which has prompted many of the expressions which I submit.

The evolution of the present methods of bacteriological diagnosis of diphtheria — and it is to that branch of the subject to which I desire to call particular attention — is interesting and may be traced in few words.

Prior to 1868, when Professor Oertel published his classical treatise in Ziemssen's Cyclopædia, the clinical manifestations and microscopical appearance of the exudate were wholly relied upon for diagnosis. He reported the discovery of micrococci in the membranous deposit, also in the blood and lymphatic system, describing their appearance as "point like, dark contoured, round or oval little bodies, isolated and in zoöglœa." Thus began the application of the science of bacteriology to the study of the differential diagnosis of the disease. The subsequent researches of others, however, have shown that the micrococci spoken of by Oertel are none other than those which belong to all putrefying animal substances, and especially those which are commonly observed in the various pseudo-diphtherias of the present established classification — viz., the streptococcus and staphylococcus pyogenes. In 1883 Klebs discovered the bacillus which now in part bears his name, and which was shortly afterward (1884) isolated, cultivated, and successfully inoculated by Lœffler; and the rod-shaped microbe, with rounded or club-shaped ends, came to be known and universally recognized as the distinctive *bacillus diphtheriæ* or *Klebs-Lœffler bacillus*, by the most competent observers in Europe and our own country, notable among whom are Von Hoffman, Roux and Yersin, Martin, Baginsky, Brieger and Fränkel, Klein, Sternberg, Welch and Abbott, Park, Koplik, Prudden, and others. Some doubt was thrown upon the

subject for a time by the last-named observer, who, in 1888, reported that he had failed to discover the bacillus in twenty-four cases examined critically by him with that object in view. But in the light of the present understanding it is beyond doubt, and in fact, now admitted by Prudden himself, that the cases reported upon were not true diphtheria and his observations have since become more famous than ever as, alternately, they contributed largely to the establishment of the classification now almost uniformly recognized by pathologists, although his purpose then was to show the non-identity of the Klebs-Löffler germ. Thus he "builded better than he knew."

It seems at this time quite probable that the following facts regarding the Klebs-Löffler bacillus, as expressed by Sternberg (Manual of Bacteriology, 357–359), will never again be disputed:

"1. It is found in all undoubted cases of diphtheria.

"2. It is found *only* in diphtheria.

"3. Pure cultures of this bacillus induce characteristic diphtheritic inflammations when inoculated into the mucous membrane of certain lower animals."

The suggestions contained in these statements lead irresistibly to the conclusion that the bacteriological diagnosis of diphtheria has assumed a degree of importance to which it has never heretofore attained, and that the accurate diferentiation of the true disease from all other pseudo-membranous anginas is quite within our power.

Furthermore, it may safely be regarded as proven that, with the possible exception of those fulminant cases having concomitant epidemic surroundings with such unmistakable clinical evidences as that the diagnosis is obvious from the beginning, it is impossible to make an absolutely certain diagnosis, except by the aid of bacterial cultures with subsequent microscopic observation.

Another result obtained by a combination of clinical observances and bacteriological study and experiment, and which is of the greatest significance diagnostically, is the new differential classification to which reference has been made. This may be stated as follows:

1. True diphtheria—in which the characteristic bacillus is invariably found in the exudate and the discharges.

2. Pseudo-diphtheria—in which the various forms of cocci are present, notably the staphylococcus and the streptococcus pyogenes. This class is subdivided, according to Park, into —

(*a*) Pseudo-membranous angina.

(*b*) Pseudo-membranous laryngitis.

(*c*) Croupous tonsilitis.

(*d*) Follicular tonsilitis.

(*e*) Acute pharyngitis and tonsilitis without exudate.

(*f*) Cases similar to all the foregoing, but complicating infectious diseases.

Under this classification the whole subject of the diagnosis of diphtheria must, by the logic of the situation, be totally revolutionized, and, in fact, the therapeusis as well; for I venture to state that all the images destroyed by the decrees of the iconoclastic emperors of the eighth and ninth centuries did not exceed in number the therapeutic idols in the line of "new treatments" with "slight mortality," which will be nullified by its application. Hereafter all statistics relating to the success of any vaunted treatment, in which the separation of the false from the true disease has not been observed bacteriologically, will have not the slightest value. The mortality rate must now be based upon the presence or absence of the specific germ. Illustrative of this, let me call to your attention some comparative observations:

Baginsky, of Berlin, reports a series of 154 cases studied by bacterial cultures, in 118 of which the characteristic bacillus was found, while the remaining 36 were of the so-called coccus, false, or non-infectious variety. Martin, of Paris, examined 200 cases, with the result of finding the Löffler bacillus in 128, and the various cocci in 72.

The combined results of the extensive examinations made by Park and Koplik, of New York, show that in 274 cases 140 were true and 134 were false.

The aggregate of the above-reported cases is 628, of which 386 were proven to be true diphtheria, while 242, or about 62.6 per cent, were unquestionably false. The mortality rate ranged as follows: In the cases in which the Klebs-Löffler germ was found, from 26 per cent to 46.5 per cent; in the pseudo-diphtheria cases, from 1 death in 31 cases to 5.66 per cent. Thus it may be noted the relative mortality is very similar to that of variola and varioloid, although, of course, in an etiological sense they are entirely dissimilar.

It must be borne in mind that all these cases reported were clinically diagnosticated as *true diphtheria.* These observations have since been confirmed by the records of the New York City Board of Health and the Department for Contagious Dieases of the Boston City Hospital, and while the 62.6 per cent of erroneous diagnoses obtained by the aggregation of cases above noted may be a trifle higher than might otherwise be shown, it is perfectly safe to assume that quite 50 per cent of all cases now and formerly diagnosed and treated as diphtheria are in reality not that disease at all. What a commentary upon the ordinary methods of clinical definitions, and what a promise is implied therein for the future differentiation and management of this dreadful scourge!

I do not attempt an elaboration of the technique of the various methods devised and recommended for the specific diagnosis which it has been the purpose of this paper thus far to show the importance of, but will content myself by stating that with the appliances at hand and the ordinary skill which is acquired by most of the students of our advanced schools of instruction at the present time the process is not a complicated one. The most convenient method for early diagnosis consists simply in conveying, by means of a sterilized cotton swab, a small portion of the visible exudate or a minute particle of the membranous deposit from the throat of a suspicious case to a proper culture medium, such as glycerine-agar or solidified blood serum, which has previously been rendered sterile and placed in glass test tubes. Inoculation of these tubes can be conveniently done directly at the bedside of the patient, and the tube may be subsequently placed in a thermostat or incubator, and a temperature 37° C. (98.6° F.) maintained for from twelve to fifteen hours, when the bacillus, if present, will be found to have been abundantly cultivated. The culture can then be removed with a platinum loop, stained and mounted in the usual manner in balsam for subsequent examination by the microscope. A sterilized potato surface will furnish a medium for their growth in many instances which will be quite satisfactory for diagnostic purposes. Indeed, a smear of the suspected material upon a cover-glass made with the sterilized swab with subsequent staining and mounting will suffice in some cases, although it is not considered absolutely reliable. Simple as this may seem to those who are familiar with bacteriologic practice,

the question will at once arise in your minds, Can it be made available in a general point of view, and how? *I* am fully persuaded that it may, in spite of the fact that it calls for a knowledge and experience which, it is no disparagement to say, cannot be expected in the ordinarily busy general practitioner, who, in the main, has never had the advantage of technical instruction in the new science which has developed almost within the decade last past, and before I close I will endeavor to suggest a plan that, in my judgment, will furnish a satisfactory answer to the question, providing the public authorities can be brought to a proper appreciation — a thing which I must admit at the outset is most difficult to accomplish.

As is doubtless well known to most of those who listen, the New York City Board of Health has recently instituted a most commendable practice relating to the diagnosis of diphtheria, the importance of which to the public health cannot be overestimated. By a division of the city into sanitary districts, and the organization of a system of communication from certain appointed stations therein with the Department of Pathology and Bacteriology, which latter was successfully established some time ago, the practitioners of the city are enabled to have a reliably exact diagnosis made for them in all suspected cases without expense to their patients or themselves in from twelve to twenty-four hours. The necessary culture tubes are furnished free to all physicians applying for them at the several stations, and they have only to swab the throat, make the inoculation of the culture medium, plug it with sterilized cotton, and transmit it to the laboratory of the department by way of the stations, and the true diagnosis is returned to them at the earliest practicable time. Barring the loss of time required to obtain the natural growth of the germ, could any thing more satisfactory be desired?

Here, at least, is one instance where practical application keeps pace with scientific advancement, and its value, both practically and theoretically, is promptly manifested. Already by incidental studies and experimentation several very interesting and significant contributions have been made to the general subject, some of which have a most important bearing upon public sanitation, as well as individual concerns. For example, during the first three months of the operation of the plan 405 cases of true diphtheria were examined, not only for diagnostic determinations,

but the observations and cultures were repeatedly made during the continuance of the disease and during convalescence, until the final disappearance of the bacilli. This resulted in demonstrating the fact that in 245, or about 60% of the cases, the bacillus could not be found three days after the false membranes had disappeared. In 103 the bacillus persisted for seven days, in thirty-four for twelve days, in sixteen for fifteen days, in four for three weeks, and in three cases for five weeks. So that, according to this, in about 1.7 per cent of all cases of true diphtheria the subjects are capable of communicating the disease to others for more than three weeks from the time of the complete separation and discharge of all visible exudate from the throat.

This means much to the subject of isolation and quarantine detention, and has led the Board to promulgate a rule requiring that no case shall hereafter "be considered free from contagion" until bacteriological examination shows the characteristic organisms to have entirely disappeared from the throat secretions, and until that time arrives each case shall remain isolated and no disinfection of the premises be practised. These observations also reveal the fact that where antiseptic solutions were faithfully used during the progress of the disease the bacilli disappeared with the most marked rapidity during convalescence.

Following the example set by this admirable scheme of the health department of the great metropolis, several other cities of the Union are considering the propriety of instituting similar systematic organizations, and in due time, no doubt, the physicians of all the principal cities will have the same advantages as those of New York.

Influenced by the suggestions apparent herein, it has for some time past seemed to me that this great innovation in public health administration need not necessarily be restricted to the large cities where the opportunities make it so feasible, but that, with the perfected systems of transportation and communication now so universally applicable throughout the State, it may be made available to every village and community within its borders. This desirable result could and should be accomplished by the establishment or designation at various convenient points of local bacteriological and experiment laboratories, in the same general manner that agricultural experiment stations are maintained

under the patronage of the general or State governments at the present time.

It is obvious, of course, that under existing conditions outside of the large cities where, in the State of New York, at least, greater latitude for municipal management is conferred by special legislation, it would be impossible to bring about such an undertaking as a matter of local sanitary administration — this because of lack of public appreciation, apathy, indifference and expense — hence it follows that the recognized central authority in all such matters (the State Board of Health) should have general supervision and control, and that, through it, provision should be made for their appointment and maintenance. The scope and utility of these proposed establishments could in due course be enlarged and extended, thus including many other benefits in public health service; so that in addition to furnishing the means for exact and ready diagnosis in incipient and complicated cases of infectious disease, they might be made depots for many other purposes of a scientific character connected with studies in sanitation. For example, water and food analyses, questions concerning drainage and sewage disposal, matters pertaining to agricultural science and disease of cattle, besides many other pertinent topics relating to the investigation and control of endemic and epidemic influences, most of which will readily occur to the medical mind, could properly and most satisfactorily be made subjects of inquiry at such stations. The advantages of such a system of authorized ready reference to the local health officer of towns and villages would be immeasurable, and I have often heard the desire expressed by those officials for better advantages in these respects. The entire State, apart from the larger cities, should be geographically districted for this purpose, with especial reference to facilities for transportation and telegraph or telephone communication, and it is believed that this could be done in such manner as that not more than fifteen or twenty stations or laboratories would, under present circumstances, be required. In fact, there are already many private laboratories in various parts of the State that might be designated which are fully equipped for this work.

It was doubtless just such a general plan as I have indicated which the distinguished secretary and executive officer of the New York State Board of Health, the late Dr. Elisha Harris, had in mind when he undertook, in 1884, the division of the State into sanitary districts

with the object of complying with the act establishing the Board. Seven districts were then created (since made eight), and within them twenty-three so-called district investigators and experts were appointed for the pursuit of just such work as has been referred to in their respective districts. This fact seems to have been long since lost sight of, however, for under the present *régime* no labor of the kind contemplated has been done by these local investigators, although (my personal modesty compels me to say, with one exception) they are most capable men, and the majority of them have ample facilities. It is very possible, perhaps, that the insufficient funds supplied to the Board by the Legislature has been the principal cause for the abandonment of the original design, which remark makes it pertinent for me to comment for a moment upon the circumstances which would seem to justify the most important and effective objection which can be raised against the proposed method for facilitating bacteriological diagnosis by the public service — viz., the lack of adequate appropriations to properly carry out the scheme. This, I have to concede, is, unfortunately, a valid one, and would without question be the most difficult to overcome; as the inappreciation of the average legislator, like that of the average citizen, who views such matters very much in the abstract, has come to be proverbial. It is a well-known fact that, in a general point of view, the present attitude of the Board of Health of the State of New York, and those of many other States of the Union, to the subject of public sanitation does not reach that high plane of utility and comprehensiveness which corresponds with the advanced ideas of modern civilization and sanitary science, nor, indeed, with those which are contemplated by the laws which gave them birth; and in what I have to say upon this branch of my subject I desire distinctly to disclaim any intention to reflect in any manner upon the work which these boards are accomplishing. They are, in fact, entitled to the greatest credit for what they *have* accomplished, in consideration of the obstacles with which they have had to contend, and no one doubts that with the executive skill and scientific talent at their command and proper financial encouragement, far more comprehensive results would be attained. I simply wish, because it is relevant to the foregoing suggestions, to call attention to certain facts which lack consistency, and to urge the importance of further effort to secure the means to the end that theory and practice in

public health affairs may be combined for the public good. It is notorious that the three wealthiest and most populous States annually appropriate the smallest amounts *per capita* of those which have State boards. New York appropriates 5 mills; Pennsylvania, 1.14; Illinois, 2.33; Massachusetts, 21.66; New Jersey, 11; Maryland, 13; while little Rhode Island, with characteristic enterprise and a population of only 345,506, sets apart for its board 8.66. In this connection it will be interesting to carefully observe the following table, showing relative differences in wealth, population, and annual appropriation in the principal States, which was compiled and kindly sent to me by Dr. Benjamin Lee, the able secretary of the Pennsylvania State Board:

STATEMENT SHOWING USUAL AMOUNT OF ANNUAL APPROPRIATION TO THE PRINCIPAL STATE BOARDS OF HEALTH IN THE UNITED STATES, IN THE ORDER OF COMPARATIVE WEALTH.

STATE.	Estimated Wealth, 1880, U. S. Census.	Amount of Appropriation.	Population, 1890, U. S. Census.	Expense per Capita.
New York.....	$6,308,000,000	$30,000	5,997,853	5.00 Mills.
Pennsylvania.....	4,942,000,000	6,000	5,258,014	1.14 "
Illinois*.....	3,210,000,000	9,000	3,826,351	2.33 "
Massachusetts.....	2,623,000,000	49,000	2,238,943	21.66 "
Michigan†..	1,580,000,000	6,000	2,093,889	2.88 "
New Jersey..... ..	1,305,000,000	16,000	1,444,933	11.00 "
Wisconsin.	1,139,000,000	5,200	1,686,880	3.06 "
Maryland.....	837,000,000	13,600	1,042,390	13.00 "
Minnesota.....	792,000,000	9,000	1,301,826	6.88 "
Alabama	428,000,000	9,000	1,513,017	5.88 "
Rhode Island.....	400,000,000	3,000	345,506	8.66 "
Louisiana‡	382,000,000	70,000	1,118,587	62.50 "
New Hampshire ...	363,000,000	3,500	376,530	9.33 "
Florida§	120,000,000	21,000	391,422	54.00 "

It cannot but be considered absurd that the great Empire State of New York, with its population of full 6,000,000, and material wealth, amounting to more than $6,308,000,000 (census 1880), should enact a law establishing a State Board of Health, confer upon it extraordinary powers and privileges, impose upon and make it responsible for a host of duties relating to the public wel-

* Illinois. This Board has a special fund of $40,000 for emergencies.

† Michigan. This Board has a special fund of $10,000 for emergencies.

‡ Louisiana. Partly for quarantine purposes.

§ Florida. Partly for quarantine purposes.

NOTE.— The Pennsylvania Board is required to do the work of local boards outside of large cities, which is not the case with other State Boards.

fare by sanitary administration, and annually dole out to it the munificent (?) sum of $30,000, or five mills *per capita*. In other words, every man, woman and child in the State, whose apparent share in the public wealth is more than $1,400, is taxed the enormous amount of one-half of one cent per year for the purpose of devising and applying the means for promoting that inestimable blessing — the public health! On the other hand, it is stated that upward of $1,200,000 is annually spent for the maintenance of commissions and bureaus, that in most instances do not make adequate return, the secretaryships of some of which are salaried in excess of those of the Secretary of State, State Comptroller, State Treasurer, Attorney-General, State Engineer and even the Lieutenant-Governor! These facts speak for themselves, and extended argument is certainly not required to point the moral which they most vividly convey. Let us each and all resolve that we will exert every influence to correct this incongruous and contradictory state of affairs. There should be set in motion a wave of popular protest against these glaring defects, whose swelling increments would cause it to assume such proportions that it would be irresistible even to the unimpressionable legislator, and whose potent voice would proclaim in unmistakable tones the ancient maxim: "*Salus populi suprema est lex.*" It seems that this and this only, in the absence of calamitous pestilential visitation, would serve to arouse the dormant interest in this vitally important subject.

Characteristically, some specious objections have been urged against the innovation proposed in this article, many of which are, in the light of existing facts, absurd if not amusing. For example, it has been said by physicians unacquainted with the practical technique of bacteriology that the public funds ought not to be applied for such a purpose, as "all practitioners should be able to make a specific diagnosis for themselves." As well might it be thought that all general practitioners should be able and have the time and apparatus at their command to satisfactorily perform all the elaborate technical labors which are by common consent and force of circumstances made subjects of the various special departments of professional study and practice. It has even been said that the establishment of such a system under the patronage of the State would "tend to make physicians lazy!" Such arguments (?) need only to be

mentioned. Their complete refutation is readily found in the prodigious growth of medical science in recent years; and surely the Hippocratic adage, "*Ars longa, vita brevis*," was never more impressively or increasingly applicable.

The principal points which I have sought to emphasize in the foregoing somewhat desultory considerations may be epitomized by the following conclusions:

1. That the identity of the Klebs-Löffler bacillus is now established beyond controversy as the characteristic pathogenic germ of true diphtheria.

2. That this fact has led to a differential classification into diphtheria and pseudo-diphtheria, of which latter there are numerous varieties.

3. That it can be readily demonstrated that at least fifty per cent of all the cases clinically diagnosed as diphtheria, and managed and treated as such, are not the true disease.

4. That a specific diagnosis cannot be made macroscopically or clinically, a bacterial culture and subsequent microscopical differentiation being required.

5. That it is manifestly impossible, under existing conditions, for the general practitioner to correctly diagnosticate the disease without laboratory facilities and accurate knowledge of technique.

6. That in view of this latter fact, and the serious relations which this subject bears to the public health, special sanitation, quarantine detention, relative statistics of the disease and mortuary records, the State, through the management of the State Board of Health, should undertake the specific diagnosis at the instance of the attending physician, in all cases admitting of the slightest doubt.

7. That district laboratories should be established and maintained at public expense (which could be made available for many other allied investigations) in various parts of the State, which should be geographically districted for the purpose with especial regard to transportation, telegraph and telephone communication; and that with such facilities the general practitioner throughout the State, however remotely situated, would be in position to get an accurate and reliable diagnosis transmitted to him in twelve to twenty-four hours, in the same manner as is at present practised in New York city.

8. That at the present time, with the ridiculously small amount annually set apart for the use of the State Board by the Legislature, such a reform could not be successfully inaugurated.

9. Hence it should be the duty of the profession, likewise the public, to organize a most determined movement to bring about an increase of the annual appropriation in order that this, and many other subjects of investigation originally contemplated by the law, may be faithfully put in execution.

These suggestions and propositions are offered in the hope that they may eventually bear fruit, and that patient labor in the attractive fields of science may yet be duly and truly appreciated.

Time was when the barbarous superstitions of barbarous races of men led to the propitiation of highly imaginative and impossible gods, as the only relief from pestilential woes.

Time is when the search light of science has penetrated the inmost secrets of nature, and with marvellous precision has disclosed and traced the true relations of the causes, the effects, and the cure.

Time will be when, by the harmonious association of scientific attainment with practical application, suffering and sorrow will cease, and human life in length and happiness will be a glorious reality and not, as now, a fitful, troubled dream. All hail that day

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XX. Discussion on Diphtheria.

3. On the Unity or Duality of Diphtheria and Membranous Croup.

By W. A. DALY, M. D.
PITTSBURG, PA.

For obvious reasons, the unity or duality of diphtheria and so-called membranous croup presents to us a study that is both difficult and interesting. We are continually confronted with facts in our therapeutics of the diseases, or rather, to my mind, the disease in question, which by a course of a posteriori reasoning, impel us toward the opinion that a unity of origin exists, and that any apparent difference in their complexion and history is due mainly to a somewhat different manifestation of the same poisonous ma-

terial, modified either in its genesis and before coming in contact with the human body, or by a chemical or other action as yet not fully explainable, after the poison has in form of diphtheria bacilli begun its work upon the living tissues of the patient's mucous membrane. I am aware that whichever side of the question I assume there will be found most engaging arguments for the other side, and we know full well that what seems to us true to-day may be successfully refuted to-morrow, since the oracles of our art are readily supplanted by the results of later scientific investigation, so that any, even faint, approach to the solving of our problem must at least be a movable and moving factor.

The most marked advance toward reaching the truth of the unity of cause in the pathological conditions we are discussing, I think, has been the scientific work done by Drs. Roux and Yersin, of the Pasteur Institute, and later by Sydney Martin, of London. In these experiments it was found that in the growth of diphtheria bacillus there is an alkaloidal ptomaine produced which is called toxine, the absorption of which into the system produces the same effects that is revealed in the course of diphtheria, viz.: paresis, paralysis, etc.; or, strictly speaking, according to Sydney Martin, they produce a ferment, which, acting upon the living tissues, creates chemical products which act throughout the whole organism and give rise to the constitutional disturbance manifested during the course of the disease, this disturbance being in proportion, other conditions being equal, to the amount of poison absorbed into the system. The chemical products are albumoses and an organic acid. The albumoses are the potent factor; the acid has an identical, but much weaker, physiological action. These when produced from cultures and introduced into the organism of rabbits, cause the fever, paresis, paralysis and other constitutional disturbances found in the course of the disease.

We all know the French school has been far in advance of any other in reaching fixed data in the history and action of microbia, and we must at least view their reports with a profound respect. We must also reason by the analogy of these reports to our own bedside observation, and indeed it appears to me that to the chemical action of the poison developed by the various bacteria in many diseased conditions, as well as to the organic chemical action of the various ferments in others, is to be traced the true active cause of many of the serious or deadly effects upon the

living organism of the human body, not to speak of the multitude of functional derangements that the practitioner of to-day is called upon to handle in the course of his practice. To reason by analogy we may also reach such a position as to enable us to view the question of diphtheria poison in a clearer and more practical manner. For example, in states or conditions of so-called neurasthenia, nervous dyspepsia, or so-called threatened paresis, I have repeatedly quieted the distressing nervous systems which threatened insanity, with stomachic and intestinal antiseptics, such as sodium salycilate, salol and even the bi-carbonate of potash and with small doses of calomel. If any of you doubt the efficiency of the method, try it. Take a patient with nervous restlessness, insomnia, flushed face, distress and all those symptons which seem to demand the advice of an expert alienist, and give such a patient a mild laxative, such as one-half grain of calomel with senna extract, bi-carbonate of potash and salycilate of sodium each ten to twenty grains at bedtime, and see how much better he will rest, and how much more refreshed after a comfortable night's sleep, than if you give him what appears to be indicated, but what, in fact, is contra-indicated, viz., hydrate of chloral, bromides or opium. This treatment will get the patient rapidly well, and demonstrate that you have not dealt with neurasthenia at all, but with toxines or ptomaines in the digestive tract, to be relieved not by so-called nerve tonics or stimulants, but by medicines which act as intestinal antiseptics, or by arresting the peptic ferments of indigestion in the intestinal canal, which being absorbed into the system poison the nerve centers. I am of the opinion that the line of investigation which has so far revealed to the profession the action of the toxines and albumoses developed in the course and history of diphtheria bacilli should be followed, and our ability to imprison or destroy these toxines will be the measure of our success in combating the deadly pathology we have to deal with.

You will have gathered, that I lean to-day strongly to the opinion of the unity of diphtheria and so-called membranous croup, that is to say, a unity of the casual action of the primal poison, or its genesis if you wish, but modified in its chemical action in the human organism by resistance to absorption, chiefly by reason of locality of tissues affected.

For example, in the one instance, through some favoring vehi-

cle the germs may lodge themselves upon the pharyngeal mucous membrane, especially of the tonsils and half arches, there finding a locality that readily allows, not only rapid culture naturally, but ready absorption through the lymph spaces of the toxine or albumoses produced in the course of their history, and this absorption results in what we clinically recognize as constitutional diphtheritic infection. On the other hand, if the bacilli miss this immediate neighborhood and lodge in the adjacent larynx, a part not so favorable to absorption, then we have the same false membrane, but causing death by local obstruction to respiration and not through the absorption of albumoses that we have in the pharyngeal form. And there you have my reasons and ideas, as far as they seem to me to be tenable, for the unity of the poisons, and plain and homely as they may be considered yet they ought not to be therefore despised unless they are otherwise unreasonable. It might be just as well for us to understand that it appears that the Klebs-Lœffler bacillus does not eat the tissues nor digest them, so to speak, within its own body, but it produces chemical changes, external to itself, by the absorption of the elements of the serum after it has produced certain changes in it. The albumoses are, therefore, neither excreta of the bacillus nor the matter left by their death, but rather an educt of the action of the bacillus. The bacillus being a vegetable cell acts upon the animal cell.

I may be confronted with very many of the variable features of diphtheria and so-called membranous croup, and asked for my reasons for them, which neither I nor you can give. We cannot readily account for certain bedside manifestations any more than we can for the varying behavior of the typhoid poison, one patient having typhoid parotitis and from which he dies, while another has typhoid pneumonia and gets well; the same typhoid bacillus is the causal factor, but the toxine produced in the course of its history and the locality is the determining cause of its special history, course and fatality.

It will then occur to you that I desire to emphasize the evidence that comes to us, from our point of view, that: 1st. It is the toxine developed by the Klebs-Lœffler bacillus, and the frequently present streptococci and staphylococci, that does the mischief in diphtheria, and so-called membranous croup. 2d. The reason of constitutional infection, in the pharyngeal form, is the

readier absorption from this locality. 3d. There is strong confirmatory a posteriori evidence of the unity theory, from the success of the same antiseptic treatment, alike in diphtheria and so-called membranous croup, viz.: Calomel and the various other antiseptics now in most successful use.

For the study of the Klebs-Lœffler bacillus, the streptococcus and staphylococcus, and their history, course and action in the false membrane, you are referred to the able work of the host of investigators; the bibliography is far too massive, for me even to note here, but I would specially mention the work of Drs. Roux and Yersin of the Pasteur Institute, Drs. Sydney Martin and Thorne of London, as being most valuable for solving this problem; it was by their methods and experiments, clearly shown to us, that the pareses and the various paralyses which we meet with in the history of diphtheria were produced by them by the introduction of the toxines, derived from the cultures of the Klebs-Lœffler bacillus, as well as the false membrane of diphtheria and so-called membranous croup. We need scarcely occupy our time, questioning the facts given by these experimenters, nor have we any right to do so. I am constrained to go so far, as to express the expectation, that in the study of ptomaines and toxines and albumoses, not in diphtheria alone but in other zymotic diseases, we are to find the strongest proofs and guides to our judgment as to the genesis of a large class of diseases, and our cue as to the rational and most successful method of curing them.

While the bacteriology of diphtheria will usually prove the cause of diphtheria, it is a fact that we have cases of diphtheria in which all of the anatomical features of the membrane are absent, and neither are the Klebs-Lœffler bacilli always present. In other words, we may have a diphtheroid disease, with a death rate of 5 per cent, with the bacillus and even the membrane absent. Frankel records four cases of membranous laryngitis in which no membrane was found in the fauces either before or after death, but pure cultures of the Klebs-Lœffler bacillus were obtained from the membrane found in the larynx in all of these cases, and the author concludes that idiopathic membranous laryngitis and diphtheria are identical. Egidi and Ceretti of Rome have also found the true diphtheritic bacillus in the false membrane, in cases of acute membranous laryngitis.

XXI. Discussion on Diphtheria.

4. The Present Status of Intubation in the Treatment of Croup.

By J. O'DWYER, M. D.,
NEW YORK.

Most difficult would be the task of the impartial reader who would attempt to arrive at any definite conclusion regarding the value of intubation from the most careful study of the literature of this subject unaided by personal experience. So conflicting are the opinions that have been expressed by the numerous writers on this subject that the partisan choosing whichever side his fancy or prejudice might dictate, could produce an array of authorities and statistics in support of his arguments, either pro or con, that to the inexperienced would appear overwhelming. Jumping at conclusions from a limited experience, the one thing more than any other that the practice of medicine should teach us to avoid, is the principal cause that has led to the confusion and difference of opinion that still exists on this question. The more fatal a disease the more caution is necessary in making deductions from the evidence derived from a few cases, because under these circumstances the element of chance or coincidence often plays an important part which is excluded when large numbers are considered. For example, I recently intubated a patient for a physician in my neighborhood who informed me that it was his eighth case of this kind, and that seven of them had recovered. For another physician only a few blocks distant I had intubated a similar number of cases, every one of which died. At the great Ormond Street Hospital, London, in the year 1890, intubation was first tried in eleven cases of croup with only one recovery. This result was considered sufficiently unfavorable to condemn the operation, and it was therefore abandoned. At the end of two years, owing probably to more favorable reports from other quarters, it was again tried in another series of eleven cases, this time with eight recoveries. (British Medical Journal, July 22, 1893.) Whether only one case or eight cases out of eleven recover proves absolutely nothing except that some cases do recover

after intubation. Neither would it have proved any thing had every one of the twenty-two cases died, except that the mortality following intubation for croup was very large, a fact which no one with sufficient experience disputes. The literature of intubation abounds with similar examples of reaching conclusions from a limited experience, and it is on such evidence that this procedure has been over-estimated by some and condemned as useless by others according to the varying results obtained in a few cases.

The fatal and complex nature of croup which renders such contradictory results possible under the same method of treatment is also to some extent responsible for this condition of things.

Acute non-tramatic stenosis of the larynx in children that endangers life by suffocation is, with rare exceptions, diphtheria, either true or false. This disease, if unrelieved by mechanical means, proves fatal in about 90 per cent of the cases, and with all the aid that medicine and surgery can afford it still continues to be, with few exceptions, the most fatal of all the acute diseases.

The much dreaded Asiatic cholera seldom carries off more than half its victims, while croup claims a much larger percentage. Even some epidemics of cerebro-spinal meningitis are more merciful than this disease, the terrors of which are less apparent because it is always present.

In considering the causes that lead to such frightful mortality and the unsatisfactory results obtained from any method of treatment yet devised, the important fact is often lost sight of that the word "croup" means a good deal more than obstruction in the larynx. Did it only mean the latter, there would be no room for any difference of opinion as to the best method of treating it, because under these circumstances intubation in skillful hands would have no failures.

Those familiar with the pathology of this disease know that the most frequent cause of death after the laryngeal stenosis has been overcome by means of intubation or tracheotomy, is the extension of the disease to the bronchial tubes, where surgery cannot reach it, and that there are several other causes, such as pneumonia, systemic poisoning, paralysis, especially of the heart, and nephritis, each of which contributes its quota toward swelling the mortality of this terrible disease. It goes without saying that the results of any method of treatment in a disease having so many complications, the fatality of which is so great under all circum-

stances, and which varies so widely in different epidemics, must be obtained from a large number of cases in order to be of any value. Not even are the results of intubation obtained from a large number of cases, collected from numerous operators, each contributing a few, of much value, because the ability to intubate without immediate danger to life cannot be acquired by the amount of practice derived from a few cases. It is therefore to large individual experience alone that we must appeal for conclusive evidence as to the value of intubation, not only as a means of saving life, but also as to its more important function as a means of euthanasia in the most excruciating of all forms of human suffering, viz., slow strangulation.

There are at present a sufficient number of operators, both in this country and Europe, who possess this kind of experience, and they speak on this subject with no uncertain voice. Among the American intubationists who have had large individual experience, and whose opinions on this question are well known, I may mention Waxham, formerly of Chicago, now of Denver; Brown, Northrup, Huber, Caillé, Lester, Stanton, of New York; McNaughton, of Brooklyn; Hailes, of Albany; Eichberg, of Cincinnati; Richardson and Henrotin, of Chicago; Shimwell and Montgomery, of Philadelphia; Cheatham and Pusey, of Louisville; von Glahn, of Cleveland; Pyne, of Yonkers, and Graham, of Toronto. All of these, and many others whose names I have not at hand, have had in the immediate neighborhood of or exceeding one hundred cases. Several of the operators mentioned can count their cases by hundreds, and four names could be selected whose aggregate number of cases now exceeds two thousand.

The latest intubation statistics are those by Drs. McNaughton and Maddren, of Brooklyn, who have collected from 242 operators in various parts of this country and Canada 5,546 cases, with 1,691 recoveries, or 30½ per cent. (Brooklyn Medical Journal, Aug. '93.)

Notwithstanding that it is only within the last three or four years that intubation has been adopted to any considerable extent in Europe, some valuable statistics have already been accumulated. And these statistics are valuable not only because they are the result of large individual experiences, but also from the fact that they have been obtained exclusively from children's hospitals in which tracheotomy had hitherto been the only surgical measure available in the treatment of croup.

Prof. Ranke of Munich as the result of a collective investigation on the subject of intubation in Germany reports 1,324 cases of primary laryngeal diphtheria intubated with 516 recoveries and 121 cases secondary to measles, scarlet fever, pneumonia etc., with 27 recoveries, total of 1,445 cases, with 553 recoveries or 38 per cent. (Munchener Medicinisch Wochenschrift, No. 44, 1893.) Of this number Ganghofner of Prague contributed 498 cases with 213 recoveries, 42.7 per cent; Ranke of Munich, 368 cases with 128 recoveries, 34.7 per cent; Von Muralt of Zurich, 106 cases and 38 recoveries, 35.8 per cent; Jaburowski of Cracow, 165 cases and 73 recoveries, 44.2 per cent, and Unterholzner of Vienna, 164 cases and 55 recoveries, 35.5 per cent. Secondary tracheotomy was resorted to in 250 of the cases with only 20 recoveries or about 7 per cent.

In regard to the value of these statistics Ranke speaks as follows: "This number proves for itself that O'Dwyer's intubation which at first and until lately was severely fought on all sides, has in the course of a few years gained more and more friends on this side of the Atlantic, and it proves that the dangers which were formerly charged against intubation must have been very greatly exaggerated." And again, in giving the true explanation of the insignificant results obtained by means of secondary tracheotomy after intubation had failed, as follows: "The extraordinary small percentage of recoveries from these secondary tracheotomies is explained in this way; that in the majority of these cases secondary tracheotomy is resorted to after the diphtheritic process has extended to the bronchi and that under these circumstances tracheotomy could not accomplish any more than intubation."

Similar testimony as to the value of this procedure comes from Hungary. Bokai, medical director of the Stefanie Children's Hospital of Budapest, has already intubated over 500 cases of croup with recoveries of 36 per cent. In the medical report of the hospital for the year 1892, with an experience at that time of nearly 300 cases, Bokai after referring to the necessity of having an additional diphtheria pavilion constructed, proceeds as follows: "That this construction was required was demonstrated by the fact that all the beds and extra rooms were continuously filled. The cause of this great attraction of our diphtheria division was due chiefly to the employment of intubation and it gives us pleasure to be able to state that this procedure has given splendid

results, so that tracheotomy has become almost wholly superfluous. In consequence of these splendid results numerous friends have been added to the side of intubation both in the country as well as in the city and many colleagues have availed themselves of the rich material at our disposal to practice intubation under our direction. Convinced of the extraordinary importance of O'Dwyer's intubation in hospital as well as in private practice I deemed it my duty to so instruct my colleagues and it gives us pleasure to say that this acquisition has spread from our hospital throughout all Hungary."

Such is the evidence regarding the present status of intubation in Europe furnished by men whose reputations are more than national and whose experience with this procedure has been amply sufficient to entitle them to speak on this subject with the voice of authority.

It will be noticed that the percentage of recoveries is considerably larger in Europe than is generally obtained in this country and the same is also true of tracheotomy. The ready accessibility at all times of a skilled intubationist should give some better results in hospital than in private practice which may in part explain the difference, as the statistics from the other side come exclusively from the hospitals, while in this country they are furnished with few exceptions from private practice. In 186 cases treated at the Willard Parker Hospital in New York 38 per cent recovered while at the Boston City Hospital 392 cases gave only 20 per cent. In the former the resident physician and one trained assistant performed all the intubations while in the latter they were done by successive house staffs, each member of which had charge of the diphtheria division in rotation. Under the latter circumstances the individual experience was necessarily small so that no single operator could have had a sufficient amount of practice to enable him to avoid the accidents, not infrequently fatal, that are inseparable from intubation in the hands of the novice. That the different conditions which existed in these two hospitals explains the great discrepancy in the results, I do not believe; but that they were sufficient to produce a very considerable difference in the percentage of recoveries there is not the slightest room for doubt.

In regard to the comparative merits of intubation and tracheotomy as life-saving measures in the treatment of croup, I do not

know of any stronger argument that could be produced in favor of the new procedure than a short quotation from a paper by Dr. L. S. Pilcher, of Brooklyn, during a discussion on this subject before the Kings County Medical Society (Brooklyn Medical Journal, Aug., '93). Dr. Pilcher, while advocating the claims of tracheotomy as the greater life-saving operation, makes the following very candid statement: "I believe that it has been my lot to be called upon to do tracheotomy for the relief of croup in a considerable proportion of the cases that have sought surgical relief, and yet during the seventeen years during which I have been operating I have been called upon to do the operation but sixty-six times, notwithstanding the deaths from croup in our city during this period amounted to between four and five hundred every year. On the other hand, during the past four years Dr. McNaughton has been called upon to intubate 142 times. He has been instrumental in saving forty-two lives in four years; I but twenty-two in seventeen years, notwithstanding 33⅓ per cent of my cases recovered, and but 29½ of his." In other words, Dr. Pilcher was doing tracheotomy on an average of four times in a year when the deaths from croup during the same period amounted to between four and five hundred. Estimating from the deaths as given above the total number of croup cases that occurred in Brooklyn during the seventeen years referred to was somewhere between eight and nine thousand, and out of this vast number the most celebrated tracheotomist of that city succeeded in saving the lives of twenty-two. This is a good example of the live-saving qualities of tracheotomy, an operation which the poorer class, among whom croup principally prevails, seldom consent to. If they did, who would supply the skilled nursing so essential for the proper after treatment? Intubation, on the contrary, is rarely objected to, either by the rich or the poor, the ignorant or the intelligent, and no skilled nursing is required; the one and only requisite being trained operators. Outside of hospital practice there is, therefore, no room for comparison between these two procedures. The question as to whether in a given number of cases one operation may save a small percentage more or less than the other is a matter not worthy of a moment's consideration. The one which will relieve the greater amount of suffering will also save the greater number of lives. It is to be hoped that the time is not far distant when no child will be permitted to die of a disease, the

mechanical effect of which is identical with slow hanging without an attempt at relief, because the parents will not consent to tracheotomy and there is no one within reach who can do intubation.

XXII. Discussion on Diphtheria.

5. Local Treatment in Diphtheria.

By A. JACOBI, M. D.,
NEW YORK.

The bacilli and the toxine of diphtheria will invade the circulation by direct inhalation into the lungs in but very few instances. These are some of the cases in which the constitutional symptoms precede the local. Local deposits, however, are not always visible, as, for instance, in those cases in which the constitutional symptoms are connected with diphtheria of the nose, where but few deposits take place, and the virus, the nasal discharge being slightly bloody, is absorbed directly into the open blood vessels. In the vast majority of cases, however, local deposits are easily found, and mostly on the mucous membranes, rarely on that of the intestines, very exceptionally the gastric, more frequently the genito-urinary, particularly the vagina, rarely the bladder, in most cases the pharyngeal or respiratory mucous membranes. Besides, diphtheritic pseudo membranes are found on abrasions of the skin by scratching, eczema, erysipelas, vesicatories, and in surgical wounds, such as circumcision and amputation wounds, tracheal incisions, resection of tonsils or removals of adenoid growths. It is on the external wounds that the effect of local treatment can be best studied.

The local remedies employed have been used for the purpose of either directly destroying the pseudo membrane, such as nitrate of silver, carbolic acid, the actual cautery ; or to dissolve them, such as the alkaline carbonates, the chlorides, steam, papaytoin ; or to act as astringents, such as lime water and the chloride and subsulphate of iron ; or to disinfect, such as the potassic chloride, chloral hydrate, turpentine, carbolic acid, mercury, sulphur, bromine, iodide, iodoform, chlorine water, and peroxide of hydrogen. The

methods of application have been either direct local administration by the attendant, or washes and gargles, sprays, injections, inhalations.

The local treatment of the mouth and throat has two indications: First, to keep the mucous membrane of the cavities in a healthy condition, or restore them; second, to influence the diseased surface. Gargles in any shape will reach the oral cavity only. They never touch any thing beyond the anterior pillars of the soft palate, and seldom more than a small part of the tonsil. The gargles with chlorate of potassium, the benzoate or biborate of sodium have only a preventive, not a curative effect; still, they ought not to be neglected when the children are old enough to use them. Mild solutions of the above salts may also be introduced into the mouth of babies from time to time by means of a brush or a pipette. Local applications to the throat, even where they are possible, ought not to be made with powders. They are apt to nauseate and produce vomiting by their mere contact. Even powders for internal administration require careful mixing with water, or they are liable to irritate the throat; thus, the direct application of calomel, the oxide of mercury or sulphur ought to be avoided. Applications of substances with bad taste, or those that give pain, must be avoided, because the struggling and consecutive exhaustion of the patient will do more harm than the remedy will do good. That is so with a number of substances, particularly with the chloral hydrate and even with the chloride of sodium, which was recommended some years ago as a local application to the pseudo membrane of the tonsil.

In diphtheria the danger arises, first, from suffocation. That can be easily recognized, and the indications for the treatment by mechanical means, that is, intubation or tracheotomy, are readily found. These are the cases in which repeated fumigations with ten or fifteen grains of calomel, under a tent or in a small room, are used to advantage. Steam will also answer well under the same circumstances. The second great danger is from exhaustion and heart failure, which is not merely functional but organic. It is always to be feared, for it is known that apparently mild cases may thus perish. The indication, then, is to save as much nerve strength as circumstances will permit. The third great danger is sepsis, which is not to be feared to an equal degree in all cases, for those cases of diphtheria which are confined to the tonsils,

with the large amount of elastic tissues surrounding them, and with their scanty communication with the lymph system, are not liable to produce sepsis, and thereby to terminate fatally. Both sepsis and fatal termination are the results rather of those cases which are confined to or implicate the nares and naso-pharynx.

Where the diphtheritic pseudo membrane is within reach, it ought to be either destroyed or disinfected. For that purpose, a fifty per cent solution of carbolic acid in glycerine may be applied several times a day, or the tincture of iodine, or solution of one part of the bichloride of mercury in 100 or 500 parts of water. It is in these cases that chlorine water has been injected through the surface into the upper layers of the tonsils. But we must never forget, first, that only a small part of the pharynx is accessible to such treatment, and that it is only one class of patients who can be subjected to it. In order to be effective, the application must be thorough. None but adults or large children, and of them only a small number, will submit to opening their mouth and having the applications made. It is that very class of patients who can be induced to gargle with any thing like success. Smaller children will object, will defend themselves, will struggle. It takes many a good minute to force open the mouth; meanwhile, the patient is in excitement, perspiring and screaming, exhausting its strength; you may succeed in forcing open the jaws; then there begins the practice of making applications, of swabbing, of scratching off the pseudo membrane, of cauterizing, of burning. The struggling child will prevent you from limiting your application to the diseased surface. You cannot help injuring the neighboring epithelium; thus, the process will spread; instead of doing good, you have done harm; for, indeed, no local application can do as much good as the struggling of the frightened child does harm. I have seen them dying in defending themselves against the attempted violence, leaving doctor and nurse victorious on the battle-field. It is incredible, but it is true, that more than one has recommended using the electro-cautery or the thermo-cautery on the throat of a baby after forcing the mouth open. It is almost incredible, for you are aware that the offenders cannot have been ignorant of the fact that what they can reach with their instruments is but very little beside the tonsil, and they might have known that the tonsils are not apt to favor the inception of sepsis into the system.

There is an easy way of using disinfectants on the throat and mouth. Give medicines which are at the same time disinfectants, digestible and easy to take; give them in small doses; give them frequently. See that when they have been given no water, no milk is taken immediately afterward, so as not to wash them off from the mouth and throat. Such medicines are mild dilutions of the tincture of chloride of iron, or lime-water, or boric acid, or bichloride of mercury, most of which will act both by their constitutional and their local effect.

Diphtheria is most dangerous when located in the nose and naso-pharynx. The changes taking place in the nares may be an extensive catarrh, besides the diphtheritic deposits. The diphtheritic membranes are sometimes very thick, and contain a great deal of fibrin. Sometimes they are so thick as to clog the nares and to prevent respiration. Underneath them copious absorption of toxines may take place. In most cases, though, the diphtheritic membranes are not so thick. Some of them macerate very readily, and the toxine is very speedily absorbed through the exceedingly copious lymph ducts, and sepsis is the result. In some cases of diphtheria the membrane can hardly be seen. The discharge from the nose is liquid and acrid, contains small flakes and some blood. These are the cases in which the toxine is absorbed directly into the blood. All of these forms may lead to necrosis and gangrene of the tissue, and produce a very peculiar sweetish, nasty odor. Thus the inhaled air is poisoned, and being carried down into the lungs, acts as an additional danger. The most dangerous locality is the posterior nares, with their direct communication with the lymph bodies below the angle of the lower jaw. The pseudo-membranes, the lymphy ducts, lymph bodies, swarm with bacilli and toxine, with streptococci, with staphylococci, and lead to immense tumefaction between the ears and clavicles, to the formation of multiple abscesses, to hemorrhages, to sepsis. All of these forms of nasal diphtheria require immediate, persistent and efficient local treatment, for it is safe to say that every case of nasal diphtheria has a tendency to terminate fatally. The local treatment is to consist in cleansing and disinfecting. In most cases these two are identical, for if we simply succeed in washing out the macerating material, this will prove sufficient. In order, however, to have that effect the washing and disinfecting must be done often — every half-hour, every hour, every two hours. In

the bad cases, in which the nares are clogged with pseudo membrane, the cleansing and disinfecting is to be preceded by forcing a passage through the nares with a probe covered with wadding and dipped in carbolic acid. Particularly is this indication urgent when there is sopor, which owes its origin partly to the difficulty of respiration and partly to the septic condition. The methods of local treatment beside the one just described are the application of ointments into the nose by means of the brush or wadded probe, or the use of the spray or syringe or irrigator, or the use of a spoon or feeding-cup, through which liquids are poured into the nares.

In making local applications it is important that the whole surface should be touched; therefore, ointments are not available in the average cases, where the whole naso-pharynx is the seat of the affection. The atomizer will seldom convey a sufficient amount of liquid into the cavities to be of much use. A spoon or small feeding-cup, the nozzle of which is narrow enough to enter the nose, will do fairly well, and will allow the introduction of liquids into the nares in small or large amounts, all of which will enter the throat, be either swallowed or flow out. The irrigator is liable, by undue pressure, which cannot always be well measured, to injure the ear. It is true that this cannot take place very readily as long as the whole naso-pharynx is covered with pseudo membrane, but this will not always remain, and then there is a possibility of the injection entering the middle ear. This will take place the more readily the younger the infant, because the pharyngeal orifice of the Eustachian tube is relatively larger and more funnel-like in the very young than in advanced age. I prefer a small glass syringe with a conical nozzle of soft rubber. It will close up the nostril, the pressure can always be well measured and modified, and it is effective. The injections must be made in the recumbent or semi-recumbent position. On no condition must a child be taken out of bed for the purpose of having the nares washed and disinfected. I know of many cases in which the patient has died, simply for being taken up repeatedly.

The applications to be made may be quite simple. In many cases a solution of table-salt in water, 7–1,000, or boracic acid. 3 or 4–100, or lime water, will answer all purposes. The latter is particularly indicated when there is a thin, acrid, slightly fetid

discharge. A more efficacious disinfectant than all of those mentioned is the bichloride of mercury — one part mixed with one hundred parts of chloride of sodium in from two to ten thousand parts of water. It can be used freely. If moderate quantities of a mild solution of bichloride of mercury be swallowed while being injected, no harm is done. Where there is a fetid odor the nares ought to be deodorized by carbolic acid or creolin. Carbolic acid may be used in solutions of from one to ten in one thousand parts of water, but it must not be forgotten that there is some danger in swallowing the carbolic acid, because of the nephritis which it may give rise to. For the same purpose of deodorizing, creolin may be used in one per cent solutions.

For the purpose of dissolving membranes, papaytoin (not the proprietary medicine sold under a similar name) has been used in 5 per cent solutions, either as a spray or injection, or direct applications, by means of a sponge or brush. I have used it to dissolve the diphtheritic membranes of the trachea below the tracheotomy tube in greater concentration. Its application in powder does not answer well. For the same purpose, trypsin, in 5 per cent solutions, has been employed, mixed with bicarbonate of soda.

The cervical lymphadenitis, of which I have spoken as the result of nasal diphtheria, must be treated persistently and effectively. This treatment may be preventive and curative. The preventive treatment consists in the nasal injections described. When large tumefaction has taken place, tincture of iodine has been applied externally; it is useless. Mercurial ointments have been applied; they are useless, both as a remedy, and as a means of massage. Ice externally is rational, but it is useless as long as the infection is not stopped. I have, in a number of instances, injected iodoform, in ether, into the swelled mass. It is too painful and too inefficacious, and does not pay for the agitation, the anguish and the exhaustion of the unhappy baby. So, indeed, there is no remedy, besides the preventive measures, except in long and deep incisions into the immense mass. Do not wait for fluctuations, or even semi-fluctuations to become apparent. A great deal of the swelling is inside the fascia. Abscesses, when they form, are seldom large. The contents consist more of necrotic tissue, which ought to be laid open as soon as possible, and disinfected. The incision must be a long one — in most cases

from ear to clavicle. The disinfection of the wound may be obtained by subnitrate of bismuth, by tincture of iodine, and iodoform or other antiseptic gauze. No carbolic acid can be used for disinfection, because of its tendency to give rise to hemorrhages. When hemorrhage takes place, it is apt to stop under pressure with antiseptic gauze, but sometimes large blood vessels having been eroded the hemorrhages are very copious. In such cases the actual cautery, acupressure, sometimes the ligature of blood vessels, has to be resorted to. Chloride of iron and subsulphate of iron must never be used on such necrotic surfaces. They give rise to a thick coagulated scab, under which septic absorption is apt to take place.

The treatment of diphtheritic paralysis is in part local. Friction and massage of the paralyzed limbs, either dry or with oiled hands, or with alcohol and water, will restore circulation and nutrition to the muscles. The principal indications for local treatment, however, are found in those cases in which the respiratory muscles are paralyzed, and life is in imminent peril. Fortunately, the cases are rare, but they require immediate treatment. In the neighborhood of the paralyzed muscles, strychnia injections can be made in brief intervals, and the electrical current must be passed so as to stimulate paralyzed muscles. Care must always be taken, however, not to over-stimulate, thereby paralyzing the muscles, which is the invariable result if the current is allowed to pass through the tissues uninterruptedly.

XXIII. Discussion on Diphtheria.

6. The General Treatment of Diphtheria.

By EDWARD F. BRUSH, M. D.,
MOUNT VERNON.

When we are confronted with a case of diphtheria we must not be deluded with the idea that we can abort the malady, or cure it in the sense that we understand the curing of intermittent fever, or cholera morbus, and such affections. An established case of diphtheria, scarlet fever, measles and the like maladies pursue a more or less definite course, and at best we can only

assist nature to combat the disease, and guard against certain dangerous tendencies and support the patient's strength sufficiently to outlive the tenure of the attack. There is no specific remedy. We cannot tell why, but it is a fact, that a great majority of the laity, and a large number of the medical profession in all schools, either hope there is, or else imagine they already know some specific remedy for every disease that afflicts the human race. Many of us to-day are watching the bacteria so intently, that we are in danger of losing sight of other important factors in disease, but surely, no one who stops to think, will ascribe any single thing as the cause of disease. If there was but a single cause, how easily and quickly we would find a remedy. Itch results from a single cause and sulphur is a specific, but the grave and frightful disease under consideration is not due to any single cause; some single agent, maybe, the bacterium, like the match to the pile, is necessary to start the conflagration, but, to stop and study the life history of the match, and find out how to destroy it, would not enable us to extinguish the conflagration.

There are, probably, more dangerous and potent drugs used in the treatment of diphtheria than in any of the other diseases, especially with children. The almost reckless use of the bi-chloride of mercury to-day I cannot think is judicious. Our little patients, with the severer forms of diphtheria, will sometimes die, and I know from my own personal feelings that there are some assuaging circumstances connected with the consciousness that I did not administer drugs that may have hastened the end.

Let us take a general view of the situation. We know that the treatment of diphtheria at the present time is more heroic than ever before. Astonishingly large doses of mercury, in all forms, are being used. Are the results any better than before this antiseptic age? This vigorous warfare on the bacteria, with our present knowledge, appears to many a conscientious worker to be rational, but have the results thus far proven an advance in the treatment? N. Lunin, in 1882, treated 296 children who had diphtheria. He tried six methods of treatment, and divided his cases into two groups, namely, the fibrinous form and the septic form. His remedies were tincture of iron, turpentine, resorsin, corrosive sublimate, chinoline and bromine. The death rate ranged from 8.30 per cent to 100 per cent; that is, in the fibrinous cases, under the turpentine treatment, only 8.30 per cent died, while with the

same treatment in the septic cases 81 per cent died; and with the chinoline treatment in the fibrinous cases, 31 per cent died, while with the same remedy in the septic cases all the cases died, the average per cent of deaths in all the cases being 58 per cent, a very high death rate, and one is almost forced to the conclusion that the treatment was worse than useless. Can we not imagine that if there had been no drug treatment whatever, and a devout attention given to the dietetics and nutrition, the results would have been better?

Diphtheria is a self-limited disease, and if the patient does not choke to death (and this is not necessary now, thanks to the O'Dwyer tubes), and can withstand the systemic septicism, or whatever else you may call it, and the organs have not sustained severe structural changes, at the end of a more or less certain time, if sufficient strength is left, the patient will recover. Now, therefore, the one great object we must never lose sight of is the harboring of the strength by proper attention to nutrition. This consideration must involve every thing we do in the way of treatment, not concentrating our energies on the local manifestations of the disease alone. The indications should be the guide for the therapeutic treatment in all cases. The character of a prevailing epidemic should be an indication. Quiet and persistent sleep in the early stages is a very significant indication of profound toxemia. Early croup indicates a less profound constitutional disturbance. A marked difference between the surface and rectal temperatures indicates a grave systemic poisoning.

Looking over the great number of drugs recommended, used and suggested in the treatment of diphtheria at the present time, one would be led to believe that the only indication, in all stages of this disease, was for an antiseptic. There are two indications which should never be lost sight of: First, that the intestinal tract should be freely emptied in the beginning of the disease, and kept as free and clear as possible throughout the attack; second, the strength must be sustained by dietetics. For the first cathartic, there can be nothing better, or that we know more about than a full dose of calomel, and this should be repeated, if necessary, until the characteristic calomel stool is produced. After the first evacuation, large and copious injections of warm water, soap and turpentine should be used once daily and with greater frequency when the temperature ranges above 103°. It is some-

times astonishing how quickly an injection will lower the bodily temperature and soothe the patient, and I have become thoroughly convinced from my own practice, that when a copious injection of warm water will not reduce a rising temperature in a diphtheria patient, further treatment for this indication is disappointing.

The tincture of the chloride of iron is an excellent remedy. Its use has continued through all the changing fashions of a generation, and it is to-day, with a majority of the conservative practitioners, the sheet-anchor in the treatment of diphtheria, as it was fifty years ago. The efficacy of this drug is always increased by combining with it the chlorate of potash. The potassium salt itself is a good remedial agent in the disease, but if used in any considerable quantity, especially where the kidneys are likely to become involved, it is extremely dangerous; but in small quantities combined with the tincture of the chloride of iron, the good effect of the iron is accentuated, and the doses need not be large enough to be harmful. The proportion of five drops of iron to one grain of the chlorate, with glycerine and water, is a good combination.

In mild cases, no further general treatment is needed than the cathartic, the injections, and the iron and potash mixture, except careful, cautious attention to the diet. The food in diphtheria should be fluid. Whole, unmodified milk should not be used, because whole fresh milk is apt to curdle in the stomach in the hard, leathery form, and especially so when iron is administered. Besides, whole milk always creates thirst in fevers; buttermilk is far better or fresh milk curdled with pepsin, rennet, or dilute muriatic acid, the curd being very finely broken up with an egg-beater. Cold, fresh whey is also an excellent food, and fresh, sweet cream can be added to it, making a grateful food drink. Raw oatmeal water is also to be recommended as a drink in this disease. Kumyss is also an excellent food in all the continued fevers of childhood. When warm foods or drinks are required, various soups or broths are to be recommended. In the severer forms of diphtheria, characterized by a constant tendency to sleep at the invasion of the disease, or later with a high rectal temperature, 104° or 105°, with extreme pallor and a weak pulse, there is undoubtedly a profound toxemia, and probably nothing has so good an effect in this condition, if effect can be produced at all,

as alcohol. Alcohol is absorbed and reaches every part of the body quicker than any other agent, and it is also quickly eliminated. It lessens blood changes, checks the formation of poisonous ptomaines, aids in their elimination, and is really an antiseptic, which is better borne by the blood and tissues than any other that we know. It is undoubtedly a poison, but from its constant use by the human race we have an inherited tolerance to it. Its use is thoroughly rational and there is a time in the graver forms of diphtheria when nothing else is so plainly indicated. In cases of severe toxemia, it is almost marvelous what large quantities can be administered with sometimes markedly good effect, and never any apparent ill results. To get its good effect, it must be used in large and repeated doses. When, from convictions against it, alcohol will not be taken, turpentine should be urged in its place; it is absorbed almost as rapidly and eliminated in the same manner, but cannot be used to the same extent as can alcohol, neither is it as good a remedy in any sense.

The form of spirits to be used is sometimes a consideration. The commercial alcohol, distilled from the fermented grains, may be used. Whiskey comes next, but sometimes I have found children with a decided repugnance to the rye and bourbon whiskey, and then I have used the Irish bottled whiskey. Brandy is more apt to disagree with the stomach than any of the alcoholic liquors. Sometimes one of the rums, either Jamaica, St. Croix, or Medford, will prove more acceptable to the patient. If the child is old enough, and has still enough of interest in its surroundings to express a dislike, I try the different liquors until one is found that the patient does not seriously object to; but if the patient is not willing or able to take alcohol in any form, when it is indicated, it should be administered through a stomach tube, in combination with food, and when this procedure becomes necessary, very large doses must be administered, as the intervals between the doses must, necessarily, be prolonged.

To sum up then, guard the intestinal tract from becoming a source of poisoning. Support the patient's strength with nutritious fluid foods. Use the iron and potash mixture in good-sized and frequent doses. When the slightest symptoms of toxemia supervene, use alcohol in large and heroic doses, always attending to the bowels and nutrition. Until our knowledge is vastly increased we will not find a specific. Avoid all the new and

loudly heralded remedies, and I am sure your patient will have as good a chance of recovery, as Nature and our present knowledge of therapeutics will permit.

XXIV. Discussion on Diphtheria.

7. The Use of Tartar Emetic in Diphtheria.

By H. DeV. PRATT, Jr., M. D.,
ELMIRA.

Every practitioner of medicine has found it a most difficult matter to prescribe a satisfactory plan of treatment for diphtheria. This is due, partly, to the high degree of mortality under the most approved form of treatment, so that physicians who have tried conscientiously each method of treatment as it in turn has been recommended and received the stamp of "scientific investigation," have become discouraged by their results, and have no systematic mode of treatment. Another factor, leading to this condition of disbelief in any and all forms of treatment, is the fact that the disease appears in different forms in different epidemics, and a particular mode of treatment in one epidemic would be almost valueless at a subsequent time. It is my purpose in this paper to formulate a few facts concerning the use of tartar emetic in the treatment of diphtheria, giving the method of using this remedy and the results that have been obtained.

During the past two and a half years I have treated forty-seven cases of diphtheria by tartar emetic, two of whom died and forty-five recovered. These were all cases occurring in private practice and represented nearly every phase of the disease, from mild cases to the most severe forms, and all of them were cases of diphtheria.

The plan of treatment is simple. An aqueous solution of tartar emetic, combined with a small amount of opium is given frequently, so as to keep the patient slightly nauseated for the first few hours; for example, to a child two years old one-thirtieth grain of tartar emetic and one-sixth of a drop of laudanum are given every hour for the first twenty-four hours, then the dose of tartar emetic is increased to one-fifteenth grain every hour for the next twenty-four hours and from one-tenth to one-fifth every

hour thereafter until the disease terminates. With the tartar emetic small doses of opium should be used as one-fifth or one-sixth drop of laudanum every hour. This opium is of great assistance in rendering the patient more quiet, and it also prevents nausea and diarrhœa, which might occur without it.

For the first twenty-four hours, the constitutional effects of tartar emetic are noticed, to a slight degree. There may be nausea and sometimes vomiting, but these have never lasted more than the first few hours. These effects are by no means as prominent as one would imagine, and a toleration of the remedy is quickly established so that the dose can be doubled in the second twenty-four hours, and there will be absolutely no constitutional effects, attributable to tartar emetic. On the contrary, the patients take liquid food freely and retain it much better than is usual in such cases. There is no depression of the heart, or any of the vital forces, following its use; in short, there are none of the usual effects of tartar emetic that would in any way contra-indicate its use.

The effect of this remedy on the disease seems to be, first, to arrest its progress, and second, to hasten the separation of the false membrane in whatever location it may be. After the first twenty-four hours the intensity of the disease is greatly diminished. It appears to be at a standstill, or nearly so. Its progress is slow. There is not the rapid extension of the false membrane. In the next twenty-four hours the spread of the membrane is almost entirely checked and it begins to appear loose at the edges, and in the next two or three days the membrane is almost entirely gone. This holds true, wherever the membrane is located, whether on the tonsils, in the pharynx, larynx, or in the nose. It sometimes happens that after the membrane has entirely disappeared it returns, but if it does, it is much thinner than at first, and soon disappears by continuing the same plan of treatment. As the local symptoms disappear, the constitutional symptoms improve, the appetite becomes better, and a large amount of nourishment is taken, even when one-tenth or one-fifth grain of tartar emetic is taken every hour. It has been my custom to discontinue the use of the tartar emetic as soon as the false membrane has been absent for twenty-four hours, unless there were present symptoms of diphtheritic croup, then the remedy is used until the cough and croup have disappeared.

The most scrupulous care is used, as to nourishment, cleanliness and the disinfection of all discharges from the patient. Little or no attention is given to the local treatment. Cleanliness is of the utmost importance. Great care should be used not to irritate or disturb the false membrane. There is no objection to the use of sprays, gargles or washes, provided they are non-irritant in character, and do not disturb the patient. In most of my cases no local treatment has been used.

In none of the cases treated by this method, have there been any of the sequellæ, that previously had been so frequent. There has not been, so far, a single case of laryngeal paralysis, or paralysis of the muscles of the extremities, and it is the natural inference that the absence of these distressing sequellæ must be due to the treatment employed. This method is not an emetic plan of treatment; that plan has, from time to time, been lauded, but has never stood the test of practical experience. In using tartar emetic there is neither nausea nor depression of the vital forces after the first few hours.

The theory, as to the use of this remedy, is, in my mind, that it acts directly as a specific upon the diseased surfaces, mitigating the activity of the disease and hastening its cure. It is a well-established fact that in tartar emetic poisoning, patches of yellowish colored false membrane appear on the tonsils, in the throat and fauces, thus showing that it has a decided effect upon these places. Bacteriological examinations have not been made, but these would undoubtedly show a rapid decrease in the number and activity of the bacilli and their final disappearance.

In conclusion I would like to report a few cases illustrating this plan of treatment:

Case 1.—Jennie W.—age, five years. Two days after a younger brother had died of diphtheria, complicated with croup, was attacked with croup. There was a small patch of membrane on the right tonsil, also a small thin piece on the pharynx. In a few hours the membrane had spread with great rapidity, till both tonsils, the fauces and posterior pharyngeal wall were covered, there was also a sharp, hard, dry, croupy cough. I had been using in the other fatal case the mercurial treatment, and in this case, thinking that death was but a short distance away, I gave, at the earnest solicitation of the family, an emetic, preparing an aqueous solution of tartar emetic, about one-twentieth grain to the teaspoonful, with directions to give this every hour. It was given faithfully, and made the child vomit twice in the first twenty-four hours, which, not being considered sufficient, I increased the amount to about one-tenth grain every hour, the symptoms remaining about the same, with slight increase in the croupy symp-

toms, and there was also a brownish discharge from the right nostril; the pulse was 140 per minute, and weak, and respiration was labored. The tartar emetic was continued, and a small amount of laudanum given to quiet the child. The third day the child was no worse; the fourth day there was an amelioration of all the symptoms. On the fifth day the pulse became less frequent — 110 per minute, and of good quality — and respiration less difficult; the membrane began to come off in patches, and from that time on there was a gradual improvement. The tartar emetic was used until the membrane had entirely disappeared and there were no more symptoms of croup. This was my first case of tartar emetic treatment, and it was used originally to cause vomiting at the solicitation of the parents. I had never seen so severe a case recover. In the same family the remaining child, a boy fifteen years old, was attacked just as his sister began to improve, and he was put on tartar emetic treatment, and recovered. This was the beginning of this plan of treatment with me, and since that time every case has been treated with tartar emetic.

Case 2.—Nettie S.—age fourteen, a stout, well-nourished girl, had well-developed diphtheria when I first saw her, with large patches of membrane on both tonsils, cervical glands very much enlarged, face and neck intensely swollen, pulse 120, temperature 103–5. Used tarter emetic in the same manner as described above, till nausea was produced. The first two days there was no improvement, but the disease progressed, membrane extended to fauces, pharynx, posterior nares, nostrils and larynx, pulse and temperature remained high till the fourth day, when there was an abatement of all the symptoms, and a gradual recovery took place.

Case 3.—James C.—age nine, a pale, anæmic boy. On each tonsil and on the posterior pharyngeal wall was a small piece of dark-colored membrane, the breath was very fœtid, so that the odor in the adjoining rooms was very pronounced, slight rise in temperature, pulse rapid. Tartar emetic was used as in previous cases. Croupy symptoms developed from the extension of the disease to the larynx, and although recovery was comparatively slow, the child got well.

These are samples of the different kinds of cases that have been treated by tartar emetic, and my previous experience has been that such speedily died, while by this treatment they recovered. From this small number of cases, forty-seven, it would be impossible to say what the final outcome of this treatment will be, but I consider it my duty to the profession to describe the plan of treatment and the results that have been obtained. In my practice the previous mortality rate has been about 35 per cent of the cases treated, while under this plan of treatment the mortality rate has been a little over 4 per cent, or two deaths in forty-seven cases. It is perhaps needless to say that these cases were not cases of tonsilitis, but true diphtheria.

DISCUSSION.

Dr. T. E. SATTERTHWAITE, of New York : I would like to add one or two points to what I have already said. First, there seems to be a common understanding that diphtheria is local first and constitutional afterward. All bacterial work, all work for the last ten years, points that way. The next point is that membranous croup and laryngeal diphtheria are the same thing. All laboratory bacterial work points in that direction. The two diseases are one histologically. We believe there is no difference between the two. I have maintained that for a long time.

Dr. A. JACOBI, of New York : It is impossible to discuss this question at length and I will confine my remarks to the question of treatment. I approve of every thing said in regard to the value of alcohol ; it is not a new conviction with me ; I wrote on the subject of diphtheria thirty-four years ago and spoke of the value of alcohol at that time. I have urged the administration of alcohol in large quantities, and in my book in 1880 I made the statement then and stick to it, that it is impossible to give a child sick with diphtheria, too much whiskey or brandy. It is impossible to give enough to produce intoxication. When it affects them they are getting well. I am certainly in favor of giving large doses of whiskey and brandy. I have seen frequently that babies would take four ounces, and children two or three years old eight ounces daily and bear it well.

I have expressed in my short paper a way in which cases can be reached locally, and I spoke of the frequent application of mild solutions of disinfecting remedies. I spoke of iron and also of bi-chloride of mercury. I will simply say I have had less reason to be dissatisfied with the bi-chloride of mercury than with all the rest. I have been preaching chloride of iron for thirty years, and do it still, but there are a great many cases in which chloride of iron is not tolerated. There are few cases, perhaps none, in which bi-chloride of mercury is not tolerated. The younger the baby is the more is the use of bi-chloride tolerated and required. It is impossible when you dilute it sufficiently to set up vomiting or diarrhœa. It is ten years since I published my essay on the use of bi-chloride of mercury ; I simply repeat for the benefit of those who may waver in their convictions: A baby six months old will take a quarter or a half a grain of corrosive sublimate a day for one week in succession and will show no symptoms except to get well. I don't say

every case of diphtheria will get well, but I know that I have seen more cases of diphtheria get well with the administration of bi-chloride than with any thing else. As to treatment with tartar emetic, I do not know any thing about it. It resembles what was known as the pilocarpine treatment, which was discarded because of its weakening action on the heart.

Dr. J. W. Wood, of Port Richmond, called attention to the treatment advanced by Dr. Martindale some three years ago of saturating the air of the room with the vapor of tar and turpentine, and which has become a standard treatment in Richmond county. Not only will it decrease the mortality, but those who use it will find there will be no other cases in the family.

Dr. H. R. Hopkins, of Buffalo, suggested the administration of alcoholic liquors by injections into the rectum, where it will be retained in large quantity and apparently absorbed, and the method may be used in young cases where it is difficult to give any thing otherwise.

Dr. George Seymour, of Utica, objected to the propositions contained in Dr. Suiter's paper, that State officers should be appointed for the purpose of making bacteriological examinations in regard to diphtheria, as he believed that physicians should learn to make them for themselves.

Dr. Satterthwaite thought that we should throw our influence toward the encouragement of biological researches through our boards of health ; it is the only way that certain questions of diagnosis in diphtheria can be determined.

Dr. Wm. H. Daly, of Pittsburgh, Pa.: I am as enthusiastic for calomel in diphtheria as our friend Dr. Jacobi is for bi-chloride of mercury. Give children four years old two and a half to three grains of calomel in a teaspoonful of water every two or three hours until you have stools of bilious character ; then do not diminish the dose, but increase it so as to secure two or three stools in twenty-four hours.

XXV. Artificial Immunity.

By HENRY REED HOPKINS, M. D.,
BUFFALO.

The traditions and the history of the art of medicine have ever asserted the fact of the remarkable exemption or immunity of certain races or individuals from attacks of communicable disease to which their less favored neighbors were liable. The findings of the science of medicine in her investigations and experiments upon the reactions of various contagia upon the lower animals reveal the existence of a similar variation in immunity, proclivity, susceptibility, and are already well advanced in the most ambitious and far-reaching of human endeavor, the attempt to discover the secret of the immune, in order to possess the God-like power of extending his inestimable blessings and advantages to his less-favored brother, the susceptible. With truth and soberness, it may be said that there does not exist, and there never has been, a more attractive, a more potential scientific investigation, than the study of artificial immunity. To the elucidation of this problem, medicine is at this moment devoting her highest art and her most profound science — her most creative enthusiasm, and her most cautious painstaking and accurate technique.

Let us recall some of the primitive conceptions embraced in this consideration. The well-attested observation that certain races, families or individuals possessed a peculiar exemption from the attacks of a given disease, for instance, the dark-skinned races from ague, led our forefathers to recognize the condition which we know as immunity — that the individual who was immune to a given disease, was to that form of illness disease proof. Continuous and contemporaneous with these interesting observations ran a similar set, resulting in the conclusion that certain individuals had the misfortune to be the pathological antithesis of the previous class, differing from the average of their kind in the opposite direction, and their situation or relation to disease the fathers were wont to indicate by the terms — proclivity, susceptibility.

Here it is worth noting, for the observation may be found of some little significance, that as the fathers recognized instances of wide variation from the average reaction of individuals to acute

disease, they also noted that individuals frequently reacted singularly to the operations of certain well-known remedies; that in one class the usually efficient dose would be found utterly inefficient, while in the opposite class extreme or poisonous conditions or effects would result from the exhibition of what was usually considered perfectly harmless and suitable doses. These interesting facts are still grouped about that most fascinating and puzzling term, idiosyncrasy.

The prosecution of the theory of the bacterial origin of infectious disease has brought us many important new truths; not the least of these in interest and suggestiveness is the fact of the communicability of many of our infectious diseases to our neighbors, the lower animals. Had the observation not extended beyond this point, it still must have been regarded as one of the utmost practical importance and suggestiveness, but already the party of exploration is sending back news from much higher altitudes, and we hear from many laboratories that the same veins, the rich ore-bearing veins — immunity, proclivity, susceptibility — known for ages to run among the children of men, are also found, and in a more marked degree in the lower animals. Moreover, these veins, as seen in the lower animals, are workable, are being worked, and the precious metals, the silver and gold of scientific therapeutics, laid up in these everlasting hills of the bacteriologist — the rabbit, the guinea-pig and the mouse — are now in sight; in fact, the metallic bars are now in the assayer's office, or on the way to the mint, waiting for the final test and stamp as coin of the realm of scientific medicine.

The questions which the bacteriologist would answer in this investigation: (1.) What is the nature of the change wrought in the individual, child or adult, by an attack of disease — scarlet fever, small-pox or vaccinia—whereby the individual ceases to furnish the requisite culture media for the maintenance and growth of that particular bacterium known to cause, or to the most intimately associated with the cause of the particular disease? (2.) How far does this principle of immunity, natural or acquired, extend among the infectious diseases? (3.) How far may we extend the condition of artificial immunity for the cure or prevention of disease?

A slight knowledge of the rapidly increasing literature of this subject convinces the writer that satisfactory progress is being made

along the lines of each of these enquiries. Regarding the character of natural immunity, perhaps the progress has been the most disappointing, but even in this direction valuable observations or discoveries are reported. We may so consider the observations of Nuttall, Buchner and others upon the aseptic or anti-infectious property of the blood serum of the immune animal, this quality having been found in several instances to be in direct proportion to the degree of the individual's immunity.

Most intimately related to this thought is the discovery of Koch, as to the different methods by which bacterial invasion produces disease, methods which he proposes to recognize and distinguish by use of the terms, bacterial infection and bacterial intoxication. In bacterial infection, the microörganism, for instance, the bacillus of anthrax, gains admission to the body of the susceptible individual, and very soon rapidly increases in numbers, and literally swarms throughout the entire body, invading every organ and tissue. Such microörganisms appear to be inimical to their host wholly or in the main in a mechanical or negative manner; mechanically by blocking the capillaries, and thereby arresting the circulation of the blood and consequent functional activity, and negatively, by robbing the tissues of nutrition used in their own upbuilding, particularly of oxygen. The method of attack in cases of bacterial intoxication is quite different from the foregoing, and introduces new and most important characters, ptomaines, and tox-albumins, which may be indicated by the single word toxines. Tetanus, typhoid fever, diphtheria, cholera and possibly tuberculosis, are instances of disease produced by bacterial intoxication.

In these diseases the method of invasion may be the same as before, but the behavior of the microörganism of the disease, from the moment of invasion, differs widely in the following respects: In bacterial infection the microörganisms tend to increase and multiply rapidly, to go, and to grow anywhere and everywhere; in bacterial intoxication the microörganisms tend from the first to grow only on certain tissues and in certain localities, to produce local disease, but with their growth they elaborate a virulent poison, which gains admission to the blood, circulates with the blood, and by doing the work of an irritant poison upon the sensitive and susceptible tissues of the various organs of the body, or some of them, produces the given disease.

These poisons of bacterial origin are of two kinds, ptomaines and tox-albumins, the former are crystalline, alkaloidal bodies, the latter are colloidal. The important role these animal poisons are likely to play in our knowledge of and management of the infection, the preventable diseases, we may get a hint of when we hear that although of bacterial origin, they may be produced at will outside of the body, and yet when introduced into the susceptible individual, with or without their particular microörganisms, they invariably produce their specific diseases, each after his kind.

The possession of knowledge of the precise kind, as to the method of production of bacterial disease, as indicated by the above statement, has resulted in a decided advance of our thought, relating to artificial immunity, and we now know that an animal may have immunity of two distinct kinds, namely, from bacterial infection, and from bacterial intoxication; and our experimenters seem to have demonstrated that an individual may have one without the other, and that in the near future infectious diseases are to be treated or prevented by an increase and right use of our knowledge of both these processes.

Results of experiments bearing upon the condition bacterial intoxication seem to be the most important and suggestive, and appear to establish the following facts: That there resides in the blood serum, a chemical substance or substances of vital origin, by some called defensive proteids, or anti-toxines, which substances possess the power of rendering pathogenically inert and harmless the ptomaines and tox-albumins, the disease-producing agents, in all cases of bacterial intoxication. That the organism has the ability of producing these defensive proteids anti-toxines as their peculiar services are required for the protection of the individual, as seen in Pasteur's treatment for hydrophobia, until their presence and protective activity in the blood, in much more than that of normal ratio, is demonstrable. When an individual is by suitable treatment brought to such a state as to receive with impunity that which is ordinarily a fatal dose of a given ptomaine or tox-albumin, the individual is said to be poison-proof. And to render the susceptible poison-proof, whereby he ceases to be susceptible and becomes immune, is to-day the highest ambition of the art and the science of medicine.

Information regarding this most interesting condition of artificial immunity, poison-proof, points to the fact, as we just

observed, that it may be acquired, and that when present, either by nature or by acquirement, the fortunate possessor, if a female, may transmit the same to her offspring, and what seems to be most fortunate, the milk of the poison-proof mother renders the young almost equally immune. Experiments also indicate that the blood of the poison-proof animal has high curative powers in cases of the given disease occurring in his own kind or in man. Observers also seem to be quite in accord in this testimony, as to the complete individuality of the action of the various toxines. An animal, poison-proof against a given disease, tetanus, diphtheria, erysipelas or pneumonia, has thereby not the slightest protection against any other disease.

The writer is well aware of the fact that medical enthusiasts usually have early cause to regret their enthusiasm, and that the rôle of prophet is not popular in this, the closing years of the nineteenth century, and yet ventures to proclaim with enthusiasm the dawn of a new era in medicine, when from a truer knowledge of temperament, proclivity, susceptibility, idiosyncracy, immnity and artificial immunity — the art of the treatment of disease and the prevention of disease will attain such eminence, and accomplish such results, as heretofore have been attained and accomplished only in dreams.

XXVI. Researches on the Eliminating Power of Diseases and the Relation Between Vaccinia and Enteric Fever.

By Wm. FINDER, M. D.,
TROY.

My observations as to this peculiar phenomenon date back some fourteen years. I was then employed in vaccinating a large number of people during a small-pox epidemic. It was then that I first noticed the eliminating power of diseases, for the re-vaccination of every person who had suffered from enteric fever proved a success; but those who had been free from intercurrent diseases of this nature since their inoculation were not affected by the virus. It was then that I first noticed that there was an influence inherent in the germs of some diseases to destroy the effect of the germs of other diseases.

The proposition that some diseases do eliminate the protection afforded by a previous illness of some entirely different disease is new. It seems to me that this very fact enables us to explain many of the frequent recurrences of the various exanthema. The supposed immunity derived from having once been ill with rubeola, scarlatina and variola, has often proved ineffectual. The protection afforded by a previous disease, such as variola, is supposed to guard against any subsequent contagion of this disease. A very recent writer on variola says the lightest attack protects for life. This I claim to be true only when the person remains free from enteric and malarial fevers. I believe that enteric fever, coming after an attack of variola, does eliminate this protection. I will cite a number of cases.

M. H. had small-pox when a child; at sixteen years of age he had typhoid fever. In the fall of 1880, some four years after, I vaccinated him with the most gratifying results.

A. P., aged thirty-one, suffered from small-pox in childhood; is well marked to-day; at eighteen years was ill with enteric fever; Nov., 1893, I vaccinated him, also his children; his scar was better than theirs.

S. M., aged thirty-four, had small-pox when a girl; never ill with enteric fever; vaccinated Jan. 10, 1894, with a negative result.

These are a few of many cases. It will be noticed that where there was no enteric fever since an attack of small-pox there was a failure to inoculate.

The fact that has been taught for centuries, that because we have had certain diseases we are protected against a reinfection, does not hold true. If true, then why do we have the frequent secondary and tertiary infections of variola, rubeola and scarlatina? We believe that having had these diseases does protect to a certain extent, but we also believe that their effects as a means of protection can be entirely eliminated from the body to such a degree that reinfection may occur. How this eliminating process takes place we are unable to state. Whether or not the peculiar germs of each disease produce a complex chemical substance that protects while it remains, or whether it is liberated, or its effects destroyed by the germs of another disease, is still an open question.

The relation between enteric fever and vaccinia, the modifier of variola, seems to me to be of a very intimate character. My

observations have taught me that enteric fever will remove from the body every vestige of protection developed by vaccinia. One proof of this fact is that in countries where enteric and malarial fevers predominate the mortality occasioned by small-pox is high.

During the epidemic first mentioned I vaccinated quite a number who failed to become inoculated, but in the subsequent year I revaccinated them with perfect success, in the meantime they having had typhoid fever. I now make it a rule to vaccinate each patient after recovering from typhoid fever, and have always met with success. I have thus far had one hundred and three successful inoculations of patients whom I have vaccinated after having been ill with typhoid fever.

DISCUSSION.

Dr. FINDER exhibited, in illustration, a man well marked with small-pox, stating that he had small-pox in early life and subsequently had typhoid fever, of which he had personal knowledge. After the latter he had vaccinated him successfully.

Dr. GEORGE SEYMOUR, of Utica, stated that he had been successfully vaccinated at ten years of age, and at the age of twenty-one had typhoid fever. Since then he had been frequently exposed to small-pox without contracting it, and had been vaccinated repeatedly, but it had never taken.

XXVII. HEMORRHAGIC SEROUS EFFUSION OF THE PLEURÆ AND PERITONEUM.

BY WILLIAM S. CHEESMAN, M. D.,
AUBURN.

The patient is a married lady aged about forty-seven, residing in Rochester. In November, 1890, she became aware of oppression of breathing, but without pain or cough. Little attention was given the matter till January, 1891, when she first consulted a physician, and when Drs. Ely and Stoddard, of Rochester, examined the chest and found the right side full of fluid. Aspiration was resorted to on March 3, 1891. The fluid removed was deeply blood-stained. On May 5, 1891, aspiration was repeated, the same sort of fluid being obtained.

In June, 1891, being in Auburn for the summer, she placed herself under my care. She comes of a remarkably vigorous family, has had one child, and had always enjoyed exceptionally good health, except for menorrhagia and pain at the menses. A fibroid of the uterus had been diagnosticated

some years previously, and its presence was confirmed by my own examination. It seemed to involve the uterine body generally, and rose nearly to the umbilicus. But, barring the monthly hemorrhage, this had caused no trouble. She looked the picture of health, and is a person noted among her acquaintance for vivacity and brightness of mind. Examination of the chest showed fluid in the right pleura; the left side was clear. The heart was sound, and examination of the urine negative. The right pleura rapidly refilled, and on July 10, 1891, I was forced to aspirate.

On this, as on every subsequent occasion, precautions against infection of the pleural cavity were taken. The region about the point selected for puncture was washed with soap and water, and disinfected by sublimate and alcohol. The needle was boiled and afterward immersed for some minutes in a strong carbolic solution, and the rubber tubing of the aspirator (Potain's) was filled by suction with the same solution. The operator's hands having been disinfected, the needle was plunged usually into the eighth interspace, at the outer side of the back. Fluid was allowed to flow out till the patient experienced a sense of constriction, or coughed, when the needle was withdrawn. The amount of fluid obtained was from one quart to three pints. It had always the same character, was odorless, opaque, darkly blood-stained, non-coagulable, and, on standing, deposited a heavy precipitate which the microscope showed to consist of blood corpuscles. No other suspicious cells were ever discovered.

The pleura refilled so fast that aspiration was repeated every ten days, or so. From July 10, 1891, to January 13, 1892, she was aspirated nineteen times. In this six months many medicinal experiments were tried with the hope of checking the loss of blood. She took ergot and iodine, and iron, and alum, and I forget what all beside. On the theory that I had to deal with a hemorrhagic pleurisy, that is, that the blood and serum were results of an inflammatory process, I sought at first by confinement in bed, blisters, and internal absorbents to stop the exudation and cause its absorption, but without result. The patient seemed to do best when in the open air. She never had a rise of temperature or cough, her color remained good, and she felt no discomfort except when accumulation caused dyspnœa.

But in January, 1892, it appeared the loss of blood every ten days by the pleura, and each month by the uterus, was telling on her strength. Anæmia began to declare itself, though blood-making went on so nearly *pari passu* with blood-loss, that this came slowly, and was not so pronounced as one would have expected. There had been no tendency whatever for the pleural surfaces to adhere, and when the chest was emptied, one heard no friction or other sign of inflammation.

It seemed to me, therefore, that nothing was to be gained by further expectancy, and I decided to carry out what I had previously planned to do whenever I should feel myself justified in active interference. This was to wash the pleura free of blood, and then inject into it some substance which should excite adhesive inflammation. In casting about for such a substance, locally irritant, hemostatic, antiseptic and harmless if absorbed, Iodine had seemed most fully to meet the requirements.

Accordingly, on January 15, 1892, the following operation was performed: In the first place the aspirator needle (of large calibre), the tubing, bottle and connections, all vessels for containing or dipping water, in short,

every thing which was to touch the fluids used, were boiled several hours. The skin about the seat of puncture, and the operator's hands were cleansed and disinfected as usual. After the needle was introduced, the fluid was started by the aspirator, and then allowed to flow by syphonage, the end of the tube resting in a sterilized glass vessel on the floor. When tightness in the chest was felt, the end of the tube was transferred, the fluid still flowing, to another glass vessel containing a quart of hot sterilized water, and this being elevated above the patient's chest, the hot water syphoned gradually into the pleura. Before quite all had entered, to prevent admission of air, the vessel was lowered, and the water *plus* some of the bloody contents of the pleura, syphoned out again. The end of the tube was then transferred to a second vessel of boiled water, this raised, and the process repeated. The cavity was thus washed clear of blood.

When, after several washings, the water came but slightly tinged, a quart of sterilized water containing thirty drops Tr. Iodine, which stained it a light sherry color, was syphoned into the pleura, allowed to remain some moments and then run out again. After which a pint of Thiersch's fluid was run in and the needle withdrawn, leaving the Thiersch in the chest. This operation lasted about two hours. Twice the needle plugged and was freed by attaching the aspirator. Once it had to be withdrawn to be cleared, and then reintroduced. No pain was caused by the lavage and the pulse never varied.

About two hours later sharp pain in the chest was felt, necessitating a hypodermic of morphine, and the temperature rose to 100°, where it remained twenty-four hours and fell to the normal, and the reaction was over.

In five days dyspnœa was felt again and aspiration was done, the fluid coming light in color. But on March 5, fifteen days later, aspiration was again necessary, and the fluid was found dark and bloody as of old. The lavage had thus failed, and accordingly on March 18, 1892, about one month after the first, I repeated the washing in precisely the same manner as before, but with the important difference that, after the irrigation, I injected the Thiersch, allowed it to escape, and then an Iodine solution containing twenty-five gtts. to the pint, twice as strong as at the first operation, and allowed half a pint to remain in the chest.

During this operation the needle plugged once, and while I was clearing it by the stylet without removing it, the patient took a deep breath, and air whistled into the thorax. The day following I heard distinct amphoric breathing and voice as evidence of this accidental pneumo-thorax. But nothing came of it. The air was absorbed, and all signs of it were gone in a few days, a further proof of the surgical innocuousness of air merely.

A reaction followed as before, with pain and a temperature of 100½°, and in a week fluid had returned, so that aspiration was necessary, a quart of clear sherry-colored exudate being removed. But this terminated the trouble on the right side. No fluid ever returned, and the chest remains free of all signs of disease to-day.

But a week or so after this washing, dyspnœa again occurred, and my surprise may be imagined when I found fluid present in the *left* pleura. Immediate aspiration was performed, and a quart of hemorrhagic exudate,

precisely like that which had so long occupied the right chest, was removed. This effusion, be it observed, had come on without chill, fever, pain or any symptom save the mechanical one of dyspnœa.

In the succeeding three months the left pleura was aspirated seven times. It was then deemed wise to employ the lavage and Iodine injections here, and on June 23, 1892, this was done just as before, except that the Iodine was added to the Thiersch's fluid (gtts. xii to the pint), and about twelve ounces of the mixture left in. The usual reaction with pain and rise of temperature to 100½°, came on shortly after and lasted three days. A slight reäccumulation of serum needed aspiration five days later, but only a pint of pale fluid was obtained. This ended the trouble on the left side. There has been from that time to this no difficulty of any sort in the chest, and it seems fair to claim that the lavage and Iodine injections exercised a distinctly controlling influence upon the disease.

The employment of Iodine in this condition I had not heard of at the time I used it. It was not until a research was made that its similar use by Dr. J. G. Hyndman (Cincinnati Clinic, 1877, XII, 15) was discovered.

His case was one of active pleuritic inflammation, two aspirations giving exit to six and four pints of clear coagulable fluid. A third aspiration obtained twenty-four ounces of red exudate, which the microscope showed to contain much blood. Dr. H. then injected into the cavity one ounce comp. solution of Iodine diluted with twelve ounces water, and allowed it to remain five minutes. Fever persisted for a week, but recovery followed. Dr. H. regarded the hemorrhage in his case as proceeding from the tender vessels of a newly organized membrane on the pleura. Of course, Iodine has been frequently employed as an injection in cases of empyema, but I know of no other cases in which it has been thrown into the pleura for the purpose of stopping hemorrhage, and of exciting adhesive inflammation.*

A period of four months now ensued in which the patient enjoyed undisturbed health. It was in the middle of October, 1892, after she had returned to Rochester, that she first observed some anasarca of the ankles, and some abdominal enlargement. This progressed till, early in November, 1892, Dr. Ely was compelled to tap the abdomen, withdrawing seventeen and one-half pints of bloody fluid. The fluid, of which Dr. E. kindly sent me a specimen, exactly resembled that drawn from the chest. I sent it to Dr. Wm. H. Welch, of Johns Hopkins, who examined it microscopically, and made inoculation tests. But no light was thrown thereby on the causation. Since then the abdomen has been tapped fourteen times, about once a month, the greatest amount removed at one time being seventeen pints; the least, three and one-half pints. The patient feels as well as ever in her life, except when the weight of accumulation in the peritoneum causes distress.

Here, then, is a woman enjoying perfect health, except for a tendency to hemorrhagic effusion, which, driven successively from

* Had the Iodine injections failed, it was my intention to use a solution of sulphate of zinc, 1 to 100, which Dieulafoy employed once with success in a case of hemorrhagic pleurisy.

the right and left pleural cavities, ensconces itself in the peritoneum. How shall this clinical picture be accounted for?

We may leave out of account such possible causes as pernicious anæmia, icterus, Bright's disease, the exanthemata, acute rheumatism, scorbutus and purpura. All of these have been observed to be rarely accompanied by hemorrhagic pleural effusion, but none was present in the case reported. We may also exclude the hemorrhagic diathesis, as there has been no tendency to hemorrhage elsewhere than in the great serous sacs.

Zahn (Archiv. für Patholog. Anat. CII, 345–60) has suggested thrombosis of the vena azygos as a possible cause of double hemorrhagic pleural effusion, passive hyperæmia and blood leakage ensuing from the obstruction. It is not clear, however, from the report of his case that damming of the vena azygos was the only possible cause of the hemorrhagic effusion, and in his experiments on rabbits, stoppage of the azygos failed to be followed by bloody effusion of the pleura. At any rate, this could not produce a peritoneal effusion also.

Manifestly, too, no simple inflammatory process can be held to cover all the facts. A hemorrhagic effusion accompanies a simple pleuritis in one of two ways; either the intensity of the process leads to local stasis, arterioles rupturing, or diapedesis of red corpuscles occurring without rupture; or else organized exudation membrane forms, and its young vessels give way and pour out blood, as occurs in pachymeningitis hemorrhagica. These cases might be appropriately termed pachypleuritis hemorrhagica. In them one or two aspirations often suffice to cure. The acutely inflamed and exuding membranes are thereby brought in contact and adhere, obliterating, wholly or partly, the pleural cavity. Many such experiences are reported. In the case which I have described to you, however, there was no rise of temperature, no pain, no cough, and on auscultating the chest when the effusion had been removed by aspiration, no friction sound indicated the presence of neo-membrane or rough surface, while the unannounced transference to the peritoneum seems decisively to negative the explanation by simple inflammation.

One of the commoner causes of hemorrhagic effusion is tuberculosis of the pleura. Dieulafoy tells us (Gazette Hebdom. de Med. et de Chir., 1885, p. 269) that this may occur in three ways, either as part of an acute general tuberculosis, or as a complication

of a chronic tuberculosis, or as the result of a tuberculosis limited to the pleura, in which case it is the first manifestation of the disease. In my case the first two possibilities were never entertained. In the early months of my patient's illness, however, I felt anxious lest the third condition might exist. Time has, however, negatived this supposition. Had the bloody effusion been an expression of a localized tuberculosis, in four years it should have extended sufficiently to cause some constitutional symptoms, instead of which the patient remains in blooming health, all traces of disease having disappeared from the pleuræ.

Cancer of the serous membranes was likewise a possibility which gave much concern, and the existence of a uterine tumour seemed to bring the case into line with Lawson Tait's observations "On the occurrence of hemorrhagic pleuritic effusion in association with disease of the abdomen," (Medico-Chir. Transactions, 1891–2, vol. LXXV.) He has related two cases resembling mine in clinical details. The first was a woman, æt. twenty-six, who had symptoms of peritonitis after confinement, the abdomen swelling enormously. Five quarts of nearly pure blood were removed by tapping, and four weeks later nearly the same quantity of a fluid half blood and half water. Both pleuræ became the seat of hemorrhagic effusion, three and one-half pints being taken from one and two and one-half from the other side. Then abdominal section, with discovery of ovarian cancer, and death on the third day. Post-mortem showed fungating masses on the pleural surface of the diaphragm and ribs, secondary to cancer in the abdomen. Tait's second case was a single woman, æt. thirty-six. Abdomen greatly swollen and a tumor felt floating in the effusion and moored to the pelvis. Left pleura filled, and aspiration obtained six pints of blood-stained fluid. Right pleura next affected and bloody fluid found. Tait diagnosticated malignant abdominal disease with secondary pleural infection, and declined to operate. The effusion had to be removed thirty times from the abdomen in the next year, eight to fourteen pints being obtained each time. Tait now did abdominal section, and removed a solid fibroma of the right ovary, two pounds two ounces in weight, and patient recovered.

One of his cases thus exemplifies the familiar fact that malignant disease of the peritoneum and pleura may cause hemorrhagic serous effusion; the other, that similar bloody serosities may

occur without malignant disease to explain them. In both cases the abdomen seems to have been the first seat of trouble, which Tait explains by the presence of ovarian disease, malignant in one case, benign in the other. My patient has had a fibroid of the uterus for at least ten years. I cannot, however, find in this an explanation of the clinical phenomena, for the pleuræ were attacked before the peritoneum. At any rate, malignant disease seems, like tuberculosis, ruled out by the patient's present health and vigor.

I have thus, by a process of exclusion, come to suspect that her case is an example of what the French term *primary* hemorrhagic effusions, the effusion constituting the sole morbid entity. Of course this amounts to a confession of ignorance; yet Dieulafoy, Chauppé and Vulpian recognize the condition, and, among Germans, Rosenbach declares that hemorrhagic serous effusions may occur in persons otherwise healthy, and cites a case in which such exudation has existed for ten years. I am conscious that as the case I have described, though of four years' duration, cannot yet be considered closed, this report is, in a strict sense, premature and incomplete. But the hope that your discussion would throw light upon a rare condition, as well as that the dilute Iodine injection might recommend itself for employment in similar cases, influenced me to make this partial report.

DISCUSSION.

Dr. William S. Ely, of Rochester: I have felt great interest in this case, and think the society is indebted to Dr. Cheeseman for his interesting report. I first saw this patient in 1890, and in March, 1891, I aspirated the right chest twice, withdrawing a large amount of hemorrhagic fluid. I made an unfavorable prognosis, fearing the development of cancerous disease. The patient went to Auburn in June, 1891, and placed herself under the charge of Dr. Cheeseman. He has told how successful he was in arresting the pleural effusion. In July, 1892, the patient appeared entirely well, but in November following, some effusion was found in the peritoneal cavity. I drew, on the 9th of November, from the peritoneal cavity seventeen pints of bloody fluid, similar to that which was drawn from the chest; December 19th, thirteen pints; January 13th, eleven pints; February 14th, nine pints; March 14th, six and one-half pints; May 2d, ten pints; June 2d, seven and one-half pints; July 20th, six pints. Then the patient

went again to Auburn and Dr. Cheeseman tapped the abdomen September 8 and removed nine pints. She had four subsequent tappings, making in all forty-nine operations for the withdrawal of hemorrhagic effusions, from either the pleural or abdominal cavity. At present she feels perfectly well, and enjoys life fully, suffering only from the inconvenience of pressure from the recurring abdominal effusion. I am at a loss to determine the true pathology of this condition. It was supposed at first that it was local, in the right pleura; the recurring effusion in the abdomen leads me to infer that there is a constitutional disease behind it all. Some of you perhaps can judge what influence multiple fibroids of the uterus may have in this case. I consider that we have to deal with a unique condition which fully justifies Dr. Cheeseman's presentation of the subject to the society.

Dr. W. E. Ford, of Utica: I don't think it will be difficult to find analogous cases if we were to ask pathologists as to these serous effusions, especially in the abdomen, and sometimes in the pleura. I believe the effusion is due to fibroids of the uterus, and if these were removed the effusion would cease. I have more than once seen effusion into the abdominal cavity caused by uterine fibroids and cured by their removal, and have seen one case of pleuritic effusion. The latter condition is produced in precisely the same way, by pressure.

Dr. Cheeseman: I have made reference to Tait's published cases of hemorrhagic pleuritic effusion associated with disease of the ovaries. In these the effusion occurred first in the abdomen. I do not understand how fibroid of the uterus should primarily cause hemorrhagic effusion in the pleura.

XXVIII. Pneumonia of the Aged.

By J. H. PRYOR, M. D.,
BUFFALO.

The title "Pneumonia of the aged," is used in contra-distinction to "Pneumonia in the aged." The essential differences between the two clinical types were recognized and carefully described by the older clinicians, notably Grissolle and Trousseau. The distinction established by the two terms has been preserved, as it promotes the object of this paper. Any argument in sup-

port of the use of the term pneumonia of the aged seems unnecessary at this time. It has been called asthenic, latent and senile with reference to its peculiar symptom ætiology. Latent pneumonia occurs as a complication of various conditions and diseases, and the term senile pneumonia is used in a manner too broad to encourage proper discrimination. Pneumonia affecting the aged may be characterized by the usual clinical history of the disease as manifested in earlier years, and resembles the so-called sthenic or frank type. It attacks the strong and well-preserved individual and is accompanied by reliable indications for diagnosis. The extreme type is not common, but corresponds with the affection in middle life. This form has been designated as pneumonia in the aged; compared with pneumonia of the aged we notice varying degrees of dissimilarity, and the reason becomes apparent why the latter has been considered as belonging to a distinct clinical variety. To avoid the dangers of drawing fine distinctions and differentiating too arbitrarily, it may be well to state that conformity of type based upon clinical features is usually a matter of gradation, and that no attempt need be made to adhere to a rigid classification. Pneumonia of the aged differs from pneumonia in the aged in the following manner: The disease is peculiar to the old and infirm, latent in its development, obscure in its manifestations, and erratic in its course. The familiar symptoms of pneumonia are absent or subdued, owing to mental and physical decline and debility, and associated apathy of function and loss of sensibility and vigor. The constitutional symptoms are usually so slight as to cause no comment or complaint, and even when present early in the affection they are rarely sufficiently distinctive in character for one to decide whether they are due to grave disease, or those ill-defined and transitory ailments of feeble old age. The attention is not attracted, or the diagnosis most difficult, and consequently the disease is frequently unperceived, and death assigned to other causes. Experience with the affection is mostly limited to institutions for the aged. The autopsy occasionally reveals evidence of advanced pneumonia, previously unsuspected. It is often the cause of mysterious, sudden death in the aged, and might be found many times where such causes are assigned as senile debility and cardiac disease. The literature contains very little mention of this common and very fatal form of pneumonia. In the climate of the northern

states pneumonia appears to be the cause of more deaths among the aged than all other diseases combined. Statistical information seems to show that the mortality rate in those over sixty years of age is about eighty per cent, and steadily increases with advancing age. Some authorities state that after sixty-five years pneumonia is the cause of death in ninety per cent. These conclusions at least demonstrate the frequency of pneumonia in old people, and make the recognition of the most obscure and elusive cases important. In 1887 I published a rather complete clinical study of pneumonia of the aged, and endeavored to direct attention to the vague manifestations of this often perplexing affection. Since that time increasing experience has only strengthened the belief that it is frequently overlooked entirely, and that many who have not enjoyed special opportunities for investigation meet with unnecessary difficulty in determining its presence. At this time the object will be to attract renewed attention to the subject, and to point out some of the chief clinical features to assist in diagnosis.

It must be remarked that there is a vast difference between vigorous and feeble old age, and in the resistance which these conditions offer to disease. We are accustomed to classical descriptions of the indications of morbid conditions in the average human being of adult life, and perhaps too little stress is laid upon the influence of senility and its accompanying changes in structure and function. In debilitated old age the symptoms are less pronounced and the value and character of physical signs often lose their significance. The inquiry must be directed, therefore, to the evidence of disease as modified by these changes, and their value estimated many times by another standard of health. We are chiefly concerned with the facts, that pneumonia of the aged is atypical when compared with the description in the text-books, that the difference in clinical manifestations are due to the causes already mentioned, and that a diagnosis depends upon an acquaintance with their relative value and meaning.

The vast majority of all cases occur between November and May. In Buffalo the largest number develop in March, and seem to follow a cold north-east or east wind, whether the individual be confined to the house or not. The upper lobe is more often affected than in the adult, and the disease more inclined to extend downward. In the stage of congestion the affected portion crepitates less, and the lung does not sink as a rule in water.

The exudate is more fluid, and it is sometimes difficult to decide whether the lung is simply congested or beginning consolidation is present. Sometimes owing to extreme rarefaction the lung when hepatized does not sink to the bottom of the vessel. The left lung is involved nearly if not quite as often as the right.

The pneumonia is more often double, and œdema is much more common. Tubercular pneumonia is more common than is generally believed, and there is a similarity in the clinical features. Lobar pneumonia, due to mixed infection, often follows tubercular infiltration in the aged. The clinical history is marked by the absence of the usual symptoms, or their obscurity. There are cases where the patient does not betray the slightest indication of his condition. He may walk about as usual, partake of his meals, and suddenly die without any complaint or reference to illness. As a rule the symptoms are indefinite and much care is required for their detection. Any disturbance causes less uneasiness than in the middle aged, and subjective symptoms are not mentioned. The premonitory symptoms rarely attract attention, and the invasion of the disease is often unrecognized because the symptoms are vague and not of a nature to direct attention to the chest. At times, however, the onset is pronounced and may be accompanied by delirium and great prostration. The initial chill is rarely well marked and is sometimes absent. The most constant and reliable symptom at the outset is the elevation of temperature, usually ranging from 102° to 103°. The temperature should be taken in the rectum, as the axillary and buccal temperatures show inaccuracies and fluctuations in the aged. Later the temperature may reach 104° to 105° or even higher. The pulse, owing to the frequency of arterial changes, is unreliable; acceleration is cause of suspicion, but trustworthy information can best be obtained by cardiac auscultation. The respirations are not relatively increased, as in adults, rarely exceeding twenty-five or thirty per minute. Sometimes they are of a puffing or panting character. Dyspnœa and catching respiration is not particularly noticeable, unless the apex is affected. Any effort in breathing, combined with raising of the shoulder, should lead to an examination. Cough may be slight or wanting. The cough and dyspnœa of chronic bronchitis or asthma sometimes subside during an attack of pneumonia. The characteristic sputa are rarely present. It is oftenest thin, lacking in cell elements, and when due to co-existing œdema,

watery. My experience is in accord with the authorities who state that the expectoration never becomes purulent in the stage of resolution. The absence of pleurisy as a complication is most notable, and in the large proportion of cases there is no complaint of pain. The countenance affords valuable information in the way of expression and change of color, and the mental faculties are almost always perturbed in febrile disturbances of old age. The course and duration of the disease differ from those of adult life in that the completion of the earlier stages is sooner accomplished, and the stage of resolution more protracted. Recovery, when it occurs, is generally marked by a somewhat lengthened crisis; and the critical diarrhœa continuing through the lysis is more common than a critical sweat.

The inexperienced physician finds that physical examination of the chest of the aged is a new problem. Senile changes in the lungs and chest wall modify sounds, and practice alone can make one familiar with their altered character. At first there is a tendency to arrive at erroneous conclusions, aside from the suspicions aroused by the slightly altered breathing, and physical signs offer little information until the exudate has filled a portion of the lung to a considerable extent. Dulness is often a sign of relative value only. The crepitant rale is seldom heard; it may be developed occasionally by obliging the patient to take a deep inspiration, but as a rule the disease is not detected until too late. If the breathing is tubular anywhere it is apt to be heard over the root of the lung. Dulness over the upper lobe is not as marked as at the base, owing to the rigidity of the sternum and chest wall and the retraction of the lung away from the ribs. Tubular or bronchial breathing, when found, is most distinctive, and sufficient for a diagnosis; it is even more intense than that heard in the adult, and is often more metallic in quality. Bronchphony is changed somewhat by the weak, quavering voice, and resembles ægophony. Deep percussion is more to bring out the resonance of the whole chest, and should be employed carefully. Areas of dulness found in the chest of the aged may be due to senile changes and are often confusing. Fluid in the pleural cavity is often overlooked, and much may accumulate with slight disturbance. The insertion of a needle is more often necessary to arrive at a diagnosis. Cases occur in which the exploration of the chest give negative or confusing results, and it becomes necessary at

times to depend somewhat upon the associated symptoms; especially is this true in the earlier stages.

These briefly constitute the more reliable signs and symptoms. The important point in diagnosis is to suspect and search for trustworthy evidences of the disease. It is necessary to appreciate the extreme frequency of pneumonia in old people; the fact, that of all acute diseases of the aged, pneumonia is oftenest latent, and that it produces the highest range of temperature and greatest prostration. The symptoms to be observed with greatest caution are the chill, brown, red or dry tongue, malaise, change in breathing, malar flush, cyanosis, delirium, cough, slightest pain, prostration, increase in pulse beat, and finally the rectal temperature, elevation of which, of all the characteristic symptoms, is the most characteristic and important; I have never noted its absence, even in walking cases, or the insane, and sometimes it is the only indication of acute disease in the aged. Lobular pneumonia may occur without elevation of temperature, but I have not observed lobar pneumonia of the aged of the afebrile variety. The symptoms, confusing at first, often point to cardiac and cerebral disease.

The diagnosis must rest largely upon the high temperature and the physical signs. The diseases which frequently simulate pneumonia of the aged are hypostatic congestion, simple congestion, œdema, capillary bronchitis, pleurisy, with or without effusion, and tubercular infiltration. The differentiation cannot always be made by consulting the physical signs, but generally it is not difficult if prominent features of the case are considered. The points of differential diagnosis are not so broadly defined in the aged, and analysis must be cautious and slow. Finally pneumonia of the aged is often secondary or complicating, and many times hepatization is revealed at the autopsy as the direct cause of death. In these cases the disease is unsuspected because the attention is confined to another ailment.

DISCUSSION.

Dr. A. Jacobi, of New York, commended highly the accurate descriptions given of the symptomatology; he, however, thought that regarding rise of temperature there were many phases of the disease which do not show it. In many cases there is little exacerbation; in such, a sudden rise from 101° in the rectum to 104° is an omi-

nous symptom, and such patients are mostly lost. Just as in the child, pneumonia of the aged frequently grows out of a simple bronchial catarrh.

Dr. H. L. ELSNER, of Syracuse, had learned that in old people pneumonia often passes through its course with but little elevation of temperature. In most afebrile pneumonia there has been found interstitial nephritis and arterio-schlerosis.

Dr. WM. S. ELY, of Rochester: My experience has been that these cases not only show no fever, but also have no cough and no pain, and the condition can be detected only by frequent and thorough physical examination of the chest.

Dr. PRYOR: I have not seen a case in which the temperature was not elevated when a positive diagnosis of pneumonia was reached. Possibly it is not in the earlier stages. The cases have been mostly in one institution where there was opportunity to follow fatal cases to the autopsy table.

XXIX. THE DIAGNOSIS AND NOMENCLATURE OF FEVERS.

BY N. G. RICHMOND, M. D.,
FREDONIA.

The importance of this subject and the interest shown in it induce me to write a paper with the same title as that presented to this society a year ago. In that the claim was made that there is a type of fever common in western New York, and as I have since learned more or less common to the entire State, which in my best judgment is not typhoid and for which there is no settled name accredited by all. Some physicians have called it a mild form of typhoid fever, others named it gastric, or bilious, or malarial, or remittent, or simple continued fever, these various names seeming to have been applied to the same fever, and there is much confusion regarding it, and lack of text-book information. The identity or non-identity of this type of fever with typhoid is the chief purpose of this paper. The burden of proof seems to be that it is not typhoid, but the writer is very anxious to present the case and secure an opinion from the society, having had about fifty cases in thirteen years of observation, all of which have recovered.

The fever in question is usually gradual in its onset, protracted and uneventful in its course, and as gradual in its subsidence. It is confined to neither sex, and the age has varied from five to sixty years. It has a duration from twenty-one to thirty-five days; it seems to run in cycles of seven. The temperature gradually increases in height, day by day, rarely going above 103° F.; maintains the highest mark for a few days and as gradually decreases. The tongue is usually covered with a yellowish white coating, sometimes being clean throughout the entire illness. The countenance is sometimes dull and stupid, sometimes little changed. Constipation is usually present,— or the bowels may be regular in action. The patient is inclined to take things very quietly, and not to worry about himself, his convalescence or matters in general. The skin is usually dull in color or jaundiced in appearance. There is as much emaciation during the progress of the disease as in typhoid fever. Errors of diet during the early stages of convalescence cause a return of the fever for a few days. The pathology I cannot describe from post-mortem examination as I have never lost a case.

Osler, under the heading, Mild and Abortive Forms of Typhoid Fever, says: "It is very important for the practitioner to recognize the mild type of typhoid fever, often spoken of as gastric fever, or even regarded as simple febricula. In this form the symptoms are similar in kind, but altogether less intense than in the grave attacks, although the onset may be sudden and severe. The temperature rarely reaches 103°, and the fever of onset may not show the gradual evening ascending record. The spleen is enlarged, the rose-spots may be marked, often they are very few in number. The diarrhœa is variable, sometimes it is not present. In such cases the symptoms may persist for from sixteen to twenty days."

It would be very easy, following the description, to accept it as fitting nearly enough the fever in question, and to call it typhoid fever, thereby getting the credit of having great success in the treatment of this disease. But to do so does not satisfy the honest and conscientious practitioner. There are symptoms inseparably connected with typhoid fever which are conspicuously absent. The fever is monotonous and crises and distinctive symptoms do not occur. I made no mention, in describing the

course of the disease, of rose-colored spots, the presence of which I have never discovered.

There is never any right iliac tenderness; I have seen cases where there was tenderness in the left iliac region. There is seldom any diarrhœa — never any of the pea-soup character. There is never an anxious countenance, rather the reverse, as noted. There is never any sordes on the teeth, never a brown, dry or cracked tongue, trembling on protrusion. What is typhoid fever and what are typhoid symptoms, as generally understood, and what does the name convey to your mind but the above line of symptoms, one or all? If for *typhoid* the term *enteric fever* were substituted with the admission that by it is implied an involvement of different portions of the alimentary canal, and, in the serious cases in which delirium, high temperature, dry and brown tongue are present, Peyer's glands are involved, a solution of the question might offer itself.

There is no doubt that the South furnishes a habitat for typhoid fever and malarial fever in its various types, and doubtless new sections of the North present the same forms of malarial fever, which was more or less common when this country was new. Cities and certain regions, well defined, present them more or less clearly at present.

But the Lake Erie region of western New York, where this fever has been studied, is one entirely exempt from malarial influences. The first malarial disease or malarial complication is yet to be treated by me after years of practice, and this has been the testimony of physicians who have died after a long practice here. This region may have had malaria fifty or a hundred years ago; it may naturally be inferred that it did. If malaria once prevailed and is now absent, may it not have left in its wake some disease with its actual malarial germ eliminated or modified; a disease subsequent to and depending upon it, but not similar? With what are we to offset in the North these different types of fever credited to the South? It seems to me reasonable that as the country is developed and civilization advances, and as diseases under better hygienic conditions and more wisdom in guidance assume a less serious form, instead of losing the type of disease entirely, we should expect a modification of it. In this case it would be a change from the true malarial remittent with the germ of Laveran, to a remittent of the present time without the

presence of the germ. Delay in announcing a positive diagnosis in fevers until the tenth or twelfth day is always a wise precaution, unless typhoid symptoms proclaim themselves so unmistakably as to admit of no question. Disinfection of the stools of all fever patients is a precaution simple and easy of observance, and restful to the conscience, when a case which admits of doubt develops symptoms undeniably typhoid.

As stated before, I am convinced that the term malarial is loosely applied, and typo-malarial, gastric, bilious and simple febricula should be blotted from our text-books. The nomenclature should be simplified. And yet the very fact that these names have crept into our text-books is one of the strongest proofs that there is a fever not typhoid, not malarial. As suggested a year ago, I believe the name *northern remittent fever* describes the disease in question, simplifies nomenclature and is worthy of adoption. I present this subject and proposition from a desire of getting a consensus of opinion from those present upon it, as to whether the position I have taken is tenable.

DISCUSSION.

Dr. M. L. Mallory, of Rochester, asked if bacteriological examinations had been made of the dejections, to which Dr. Richmond replied that they had not.

Dr. A. Jacobi, of New York: Before I am prepared to add another name to the numerous class of names we ought to try to answer the question just put — have bacteriological examinations been made? It is easy to find plasmodia, and if they have been found, you would say the case was malarial. It is rather difficult to find the bacillus of typhoid, even for the best practitioners. There being no deaths there was no chance for an autopsy; a view of the intestines would have decided the matter, for ulceration having been found in the Peyer's patches, it would have been typhoid fever. We know in a large number of typhoid cases that have died we do find ulceration though there had been no great pain and no diarrhœa. In reference to the comfortable state of the patient, I may say if there is any disease in which a patient feels comfortable it is typhoid fever. When I find a doubtful case of high fever and they tell me that the patient feels comfortable, my suspicion is typhoid fever. It is a very common thing to find fevers extending over weeks and weeks having absolutely no physi-

ological basis but the presence of large masses of fæces in the intestine. A great many of these fevers can be cut short by good purgatives — the old treatment at the beginning of this century was a very good one, and the old proverb, "Whoever purges well, cures well," holds good in a large number of cases up to this very time. I have seen children and adults in whom a fever has lasted four weeks, six weeks and three months, who had been treated for malaria, where I found there was not only constipation but offensive flatulency; purgatives were given and that was the end of the "malaria." What was given in the cases detailed to us; purgatives, quinine or what? We ought to know more than the doctor has given us to decide from. The Ehrlich test has lost a good deal of its dignity, but in doubtful cases between typhoid and malarial fever, I am positive it is fairly reliable.

Dr. Richmond: I would say in answer to Dr. Jacobi that constipation preceded the fever and was a common condition. Calomel was always an initial prescription, to clear out the alimentary canal, and no doubt decomposition within it and the consequent poisoning had much to do with the disease. Physicians in this region call this fever by other names than typhoid, and intelligent people among whom it might occur would not accept this term for it, since it lacks so much the characteristics of the serious forms which they have learned to associate with it.

XXX. A Case of Acromegaly.

By FREDERIC REMINGTON, M. D.,
ROCHESTER.

This case of acromegaly I present for your consideration on account of the rarity of the affection and because the case exhibits so many of the cardinal symptoms of this affection as to be almost a perfect type. In many of the cases reported, important particulars, such as a complete family history, the past health, or even the subjective symptoms, are imperfectly recorded. This is because of the patient's mental incapacity to give an account of himself, or because the invasion of the disease is so insidious, both as to subjective and objective symptoms, as to mislead the patient into the belief that he has always been so affected. Therefore

the few cases where all of these important details are obtained, are of especial value. Never has it been my pleasure heretofore, to be able to record in so particular and accurate a way, the antecedents of any medical case. The record especially of the size of the shoes worn by the various members of the family, I believe to be accurate and complete, inasmuch as this subject was a shoemaker and made the shoes for the whole family from his youth up.

In so far as the necrology of this family concerns us, I will say, that longevity characterizes it, maternally and paternally. The father's father and the father's mother, and the mother's father, died of old age; the father's sister of epilepsy; the mother of diabetes; the mother's mother of phthisis, and the mother's sister of phthisis. A brother died of acute alcoholism. Two cousins died of malaria, and one of diphtheria. The subject had three children, one of whom died of marasmus in infancy. The other two children are living.

All of the other members of the family have been characterized by their drinking habits and their large hands and feet. In particular is the case of his father of interest. He wore in his younger days a number seven shoe; when thirty-five years of age, his foot began to increase until at his death he wore a number ten. There were five brothers, three of whom wore number nines; one only wore a number seven, and this one, Thomas, now wears a fifteen.

He has been employed all his life as a shoemaker, save during the three and one-half years he was in the army. Up to five or six years ago he was able to earn a good living for himself and family; he seldom lost a day, except on the occasion of a rather infrequent spree. Then he began to notice that he was unable to work the whole day through. Soon he began to lose whole days; then he would be idle for a week or more. At length he lost his job; but not until that occurred did he realize that he was increasing in weight. When he entered the army he weighed one hundred and forty-three pounds, and one hundred and forty-seven when discharged three years later. Between that time and 1887 he gained but slowly, weighing one hundred and sixty pounds in that year. In five years he has gained one hundred and eight pounds. There was with this increasing weight an increase in the size and distortion of the shape of the

whole body, but particularly in the hands and feet, which had always been large. Now came with this very noticeable increase in weight, sweating in the palms of his hands, and synchronously, ever increasing bodily weakness; then too he found loss of power to defend himself, due largely to weakness, but in part to a rapidly developing tenderness of the affected members. His feet, formerly requiring only a number nine shoe, began to increase so as to take a number ten, eleven, twelve, thirteen, and finally a number fourteen shoe was reached, and the warden of the county hospital — which he was now obliged to enter — had to pay two dollars and a half for the leather used in the uppers alone. His face began to change in expression, and to alter its shape. Naturally of a pleasant disposition, he became surly and quarrelsome. His memory began to fail, and his vision to grow dim.

His habits up to 1888 have been, in the main, fair. Up to five years ago he did not drink more than an occasional glass of beer. About the time his weight began to increase he found his thirst began to increase, and soon nothing could control it. This polydipsia took the form of beer drinking, and has increased to such an extent that he will drink a gallon of it at a sitting. There is a corresponding polyuria, the nature of which I will presently describe.

His past health has been exceptionally good. He had a cancer twelve years ago, and has had gonorrhœa two or three times. He has had some muscular rheumatism of a sub-acute nature, but never involving the joints. He says he had some spinal trouble, but this was probably lumbago. Some twenty-three years ago a falling stone struck his head and caused a compound fracture of the skull. There was no resulting paralysis.

The sensations not usually experienced by most patients in this case are headache, more or less constant, and chiefly in the frontal region and over the bregma. There is inordinate avidity for liquids, and whether it be water, beer or strong tea, it is taken in enormous quantities, and even then there is constant thirst. Notwithstanding the polydipsia, he is troubled with habitual constipation, lasting frequently for a week or ten days, and never for the past fifteen months has he had a movement of the bowels without a cathartic. Naturally, there is polyuria, from the immense quantity of fluid imbibed. The bodily weakness is ex-

treme, and the niceties of the special senses are lacking. Thus he is unable to distinguish delicate odors; he can tell white rose perfumery from iodoform but not from violet; he can tell sugar from salt but cannot distinguish simple syrup from molasses; he can feel the prick of a scalpel when deeply pressed into the finger, but when no pressure is used he cannot tell the point from the end of the handle. So, too, while he can distinguish hot from cold water, water at 50 and 60° F. are alike to him.

Objectively, we see a man of large build, measuring six feet two and one-fourth inches in height, an increase of two and one-fourth inches in these five years. The trunk is disproportionately long; there is a well-marked cervico-dorsal curvature with its concavity directed forward; in the dorsal region a less well-marked curvature whose convex side is toward the right shoulder. The hair is coarse, dry, harsh and not particularly abundant. The skin is of a dirty yellowish earthy color, quite characteristic of this disease. The skin is abundant but does not show itself in folds, except about the sides of the feet, a symptom often described in this affection. The immense increase of the lower jaw gives the face a most significant appearance. The ears are greatly increased, measuring three and three-fourths inches in diameter. From the roots of the hair to the base of the nose the distance is six inches. The nose is three inches long; the upper lip is one and one-half inches, and the lower lip three inches. When the genio-hyo-glossus muscle is contracted the breadth of the tongue is three inches, but it is no longer and but little thicker than normal. The mucous membrane is pale, sodden and thickened. The back molars on the left side below are in contact with the corresponding teeth above. Starting at the last bicuspid, the lower teeth begin to occupy a position in front of the upper ones, and this distance steadily increases until the greatest distance, one-half inch, is reached between the lower canine on the right and its fellow. From this point the lower set again approach the upper, until the outer edge of the last upper molar sets into the groove of the last below. The lower teeth are quite widely separated, and the alveolar processes are very well marked, as are all the tuberosities of the lower jaw, especially the symphysis mentis. The malar bones are large and prominent, and the lambdoidal, coronal and sagittal sutures well marked. The occipito-frontal circumference of the head is twenty-three and one-

fourth inches; occipito-mental twenty-nine and one-fourth inches. The measurement between the meati is sixteen inches. The scapulæ are larger than normal, the right, the larger, measuring seven and one-half by eleven inches. The chest measures forty-eight inches in repose; forty-nine in forced inspiration, and forty-seven in forced expiration. There is no perceptible dullness over the manubrium sterni, a common thing in acromegaly. The apex of the heart and the position of the thoracic and abdominal organs is normal. The abdomen measures forty-nine inches. The hands present a characteristic stubby appearance, and with the sausage-like fingers with their crescentric nails, the deeply lined skin and wrinkled palms, the impaired sensation and weakened muscles, and above all with the excessive lateral and not longitudinal measurements, we have a condition not seen in any other disease. There is apparently no change at the elbow. The wrists are enlarged, the enlargement starting just above the lower extremity of radius and ulna, and implicating those ends with their styloid processes, as well as the superincumbent tissues. All of the carpal bones are enlarged, as are the metacarpal bones and phalanges. But while the latter are enlarged only in lateral directions, the former show increased length as well. The nails are short and curved, and present the longitudinal striation so often seen. The right wrist measures nine and three-fourths inches, the left nine and one-half. The following measurements are for the right hand, the left being enlarged correspondingly, but not to so great an extent: The circumference of the carpo-metacarpal articulation is thirteen and one-half inches; of the palm twelve inches; the hand, exclusive of thumb, twelve inches; the middle joint of middle finger, four inches; of same joint of little finger, three inches. (See Fig. 6.) Both knees are enlarged, and there exists a genu volgum rather more marked than last spring when he first came under my observation. There is enlargement of the patella, as well as of the condyles of the femur and head of the tibia. The patella reflex is wanting. The ankles are enlarged; the malleoli widely separated and prominent; the feet present the characteristic cushions of fat on the outer surface spoken of by Marie. The distal phalanges are flexed. There is a well-marked hallux volgum. The veins of the lower limbs are not markedly enlarged. The measurements of the right foot are as follows: About ankle, twelve inches (see Fig. 4); heel, seventeen inches;

FIG. 1.

FIG. 2.

THE SAME SIZE HAT FITS BOTH MEN.

FIG. 3.

FOOT OF SUBJECT COMPARED WITH NORMAL FOOT OF A MAN OF THE SAME WEIGHT.

FIG. 4.

FIG. 5.

SHOWS THE HAND OF SUBJECT COMPARED WITH THE HAND OF A MAN OF THE SAME WEIGHT.

FIG. 6.

instep, thirteen and one-half inches; length of foot, twelve inches; circumference of great toe, six and one-fourth inches.

The examination of the eyes made by Dr. Wheelock Rider was negative.

Figure 2 shows the head of subject as compared with the head of a professional man wearing the same size hat.

Figure 3 shows the foot of subject compared with the foot of a subject of the same weight.

Figure 5 shows his hand and the hand of a man of the same weight.

XXXI. Glycosuria.

By WALDRON B. VANDERPOEL, M. D.,
NEW YORK.

The time at my disposal not permitting of a proper consideration of the general subject of glycosuria, I will confine my attention solely to the treatment, devoting a cursory glance only to a few essential points in the etiology. Similar to albuminuria, we find a functional glycosuria without manifest organic lesion, and a diabetic form attendant upon pronounced morbid changes in either the liver, pancreas or nervous centers. The functional being only a temporary and local condition, need not detain us, and my remarks will be limited to the diabetic form only.

Two sets of causes are recognized. 1. Predisposing, which embrace heredity, race, climate, sex, obesity, environment and age. 2. Exciting, which are traumatic; disorders of the peripheral nerves or centers, functional or structural, profound mental shock or strain, exposure to cold or moisture, prolonged errors in diet, certain physiological states, certain diseases, drugs or poisons.

Treatment should be — 1, prophylactic; 2, hygienic; 3, dietetic, and, 4, medicinal.

1. Prophylactic. Avoidance of all excess in the use of carbohydrate food or malted liquors. Occupation and family surroundings must conduce to quiet and freedom from worry, climate mild and equable, elevation moderate. These measures appeal especially to persons possessing inherited tendency or already manifesting the functional form.

2. Hygienic. The desideratum here is to maintain the respiratory, digestive, circulatory and emunctory functions on the highest possible plane. The dress should be warm, best of wool, systematic exercise in the open air, warm alkaline baths daily, followed by brisk friction and massage, a well-ventilated room for sleeping removed from noise and disturbing influences, full complement of hours devoted to repose, meals regular in time and diet easy of digestion, and to prevent dental caries detergent and antiseptic mouth washes.

3. Dietetic. The object here sought is the lessening of the glucose percentage in the blood, on which directly depends the severity of the symptoms; at the same time we may secure a restoration of the normal sugar assimilative power, which in a healthy man of average weight consumes daily two pounds of saccharine matter. In diabetes this power is impaired, not wholly lost, while sugar production is greatly increased. Early the carbohydrates alone augment the glycosuria, but later nitrogenous foods, and even the proteids of the body, are seized upon and converted into glucose and urea. Hence, early good results follow restriction of the carbohydrates, while later a mixed diet offers less strain to the renal structures, maintains the general nutrition most com pletely, and does not increase the glucose percentage in the animal fluids. Fats are of service early to supply this material to the system, which otherwise appropriates it from the body tissues; given in an assimilable form, as cream, butter or cod-liver oil, they prevent emaciation and secure proper nutrition. Later, fats are themselves attacked, and may prove an injury by augmenting the glucose supply, but at times they may still serve a purpose by protecting the albumin of both food and tissues from oxidation, which in their absence may be seized to furnish the combustion necessary for maintaining the animal functions. Bread is the most difficult article of the dietary to find a substitute for. Pavy's almond flour, composed largely of albumin and fat, offers the best theoretical substitute, but it is difficult of digestion, and does not satisfy the craving. Gluten flour, as presented in the market, is a dangerous deception, containing 30 to 70 per cent of starch (Diabetes — F. A. Davis, 1891), Dr. C. W. Purdy tells us as the result of his own analysis, and he quotes similar figures from Dr. Charles Harrington, of Boston. A number of well-known prepared diabetic flours are named, all purporting to be

free from starch, which contain not less than 30 per cent. The Soya Hispida bean has been recommended by Dujardin Beaumetz, but Saundby tells us the flour from this contains 46 per cent of starch. Inulin, indorsed by Kulz, is similar to almond bread in taste and appearance, but very expensive. Aleuronat, named by Hundhausen, contains only 7 per cent of carbohydrates, and 80 per cent of nitrogenous matters. This offers the best substitute. Saundby (Lectures on Diabetes — Saundby) gives a formula from O'Donnell for a home-made bread: Six eggs, a teaspoonful of baking-powder, one-quarter teaspoonful salt. Purdy recommends allowing one-quarter or one-half the ordinary quota of common bread as far better than trusting to the deceptive diabetic foods *ad libitum*.

4. Medicinal. Drugs are used to assist the diet, or to control complicating symptoms.

1. Opium ranks pre-eminent both in its power to lessen the glucose formation and also the polyuria. The dose should be large, and fortunately a tolerance for the drug exists here. Codeia is the best preparation, dose, gr. $\frac{1}{4}$–$\frac{1}{2}$ t. i. d., and later every two hours. 2. Bromides are of service to control nervous symptoms, but have no direct effect on the glucose production, the sodium and lithium salts are best borne. 3. Arsenic is used as arsenic acid, gr. $\frac{1}{50}$, or more often as an arsenite of bromine in Giliford's solution, drops x, t. i. d., or Clements', drops v., t. i. d., or the combination of sodium arsenite, gr. $\frac{1}{48}$, and lithium carbonate, gr. 3, dissolved in an ordinary syphon of Vichy water, and consumed in one or two days. The theory on which this therapeutic use of arsenic is based was derived from *post mortem* examinations of animals poisoned by arsenic showing a marked decrease in the hepatic glycogen supply. 4. Coal tar derivatives, antipyrin, phenacetin, sulphonal, etc. These all act similarly to opium in quieting the diabetic center in the medulla. Antipyrin is too capricious to be relied on generally; phenacetin is safer, and with an alkali yields good results in mild cases; sulphonal is doubtful. 5. Ergot and ergotine counteract the vaso-motor paralysis in the hepatic circulation; good results are reported by Satterthwaite (N. Y. Med. Record, April, 1885) and others from their use. 6. Alkalies and alkaline waters determine an increase in the alkalinity of the blood, impaired by this disease, and so increase the oxidation processes in the body, but have no direct effect on the glu-

cose production. Combined with sedatives like codeia, phenacetin, etc., we obtain a maximum effect. The (Strumpell's Text-Book of Medicine) purgative alkaline waters are most effective where sugar formation is excessive, while where the assimilation is at fault the non-purgative ones are of most avail. Carlsbad and Vichy are at the head of each list. 7. Carbolic and salicylic acids, etc., are put forward as anti-fermentatives, but are poorly borne. 8. Iodoform, recommended by Moleschot as controlling all symptoms. Tr. iodine (Seegen) the same; potassium iodide is of use where syphilitic taint exists. 9. Lactic acid was introduced by Cantani as relieving the digestive organs of labor in producing a substance supposed to be necessary to their function, indorsed by Senator later, and practically found to improve the general condition, but not to lessen the glucose. On the same principle Senator recommended the fatty acids, oleic, stearic, palmetic and butyric, and hence used soap pills. 10. Strychnine itself, or the sulphate, or better, the phosphate, is a good tonic, and of marked service in the pancreatic form. 11. Jambul was introduced by Banatvala, of Madras, to professional notice, although its curative powers have been long known to the natives of India. The powdered seeds or a fluid extract are used. The drug is considered directly inhibitory to the glucose formation in the intestines, and also exercises an indirect influence through the medullary center. The bowels are loosened by it, and thereby an important therapeutic measure secured unless this effect is allowed to become excessive. Its use has been extensive, but the reports as to its value differ widely, from which I infer that either the action of the drug is capricious, the preparations uncertain, or the therapeutic action may depend on the pathological type of the disease in which it is exhibited. 12. Pancreatic preparations were first brought forward by Lépine and Defresne, and their results confirmed later by Fanconeau. In the wasting form of diabetes, known as the pancreatic, these preparations alone have their therapeutic field. Pilocarpine was tried by Lannois in this same class of cases, relying on its known stimulating effect on the salivary glands to demonstrate a like effect on their analogue, the pancreas. Results have varied, a fact interpreted by Lépine as an index of the condition of the pancreas, failure of response being attributed to grave impairment of the structure of that organ. 13. Oxygen. This supplies a direct and ready means of enhancing

the oxidation processes of the body, increasing the sugar consumption in the tissues, and maintaining all the animal functions on a higher plane. The gas may be inhaled alone or mixed with varying amounts of atmospheric air, or may be administered *per orem* in one of the solutions of hydrogen peroxide, preferably Marchand's, dose, one-half teaspoonful in water, or as aquzon, a solution of ozone in water, dose, a wineglassful, repeated several times daily. 14. Transfusion of blood secures an effect similar to oxygen inhalations. Many other remedies have been employed, with varying success by their promoters, viz.: Electricity has proven a muscular and nerve tonic, and improved the oxidation processes much as systematic exercise and massage do. Spermine (Brown Sequard's) is recommended by Roschinin; hydrangea lithiated extract, Benson; iodol, Carna; Hippurate of lime saturated solution, Poulet; wild bilberry (whortleberry) decoction, Weil; Benzosal, Piatkowski; calcium sulphide, gr. $\frac{1}{4}$–$\frac{1}{2}$, three to four times daily, Cauldwell, Draper; Exalgine, Dujardine Beaumetz; cocaine, gr. $\frac{1}{4}$ t. i. d., Oliver; nitro-glycerine, gr. $\frac{1}{100}$, Kennedy; soda sulpho-carbolate, Monckton; phosphorus, Squire & Early; camphor, Peyraud, etc.

The above list, though large, is by no means exhaustive, and plainly indicates the amount of thought and therapeutic endeavor which have been brought to bear on this problem. The effect of drugs in this disease has been called in question, and the dietetic held up as the only effective treatment, but clinical reports abundantly show that in a discreet combination of the two will be found the happiest results.

My own method has been to gradually inaugurate a fairly rigid dietary, including milk in moderate amounts, either skimmed or unskimmed, and carefully observe, not alone the sugar percentage in the urine, but the general condition of the patient, and in many cases, usually rather advanced forms, I have found a marked improvement in the general functioning, and a decrease later, after a temporary rise, in the glycosuria on a lessening of the nitrogenous elements and the addition of carbohydrates, viz., potatoes and whole bread, to the dietary. The decision as to the exact dietary must be carefully made after a study of the general influence of the same in each case, and this varied from time to time as indications demand. By this means I feel I have averted an impending attack of true diabetic coma on several occasions;

at least there existed the well-known acetone odor to the breath, the peculiar dyspnœa and commencing hebetude, all of which improved on the addition of carbohydrates and a corresponding diminution in the nitrogenous quota of the dietary. Of late I have allowed ordinary bread, limiting the quantity to about one-half the ordinary amount, and if the sugar percentage remained high, cut off the article entirely for a while. My results with this plan have far excelled those obtained formerly with any of the prepared diabetic flours used *ad libitum*. O'Donnell's formula I have found satisfactory for a time, but have retained better control of my patients, and better observance of my other measures, with more often a lessening rather than an increase, of the glycosuria, by allowing whole bread, limited as mentioned. Codeia, gr. $\frac{1}{4}$–$\frac{1}{2}$, every two to four hours, has been of benefit to control nervous symptoms and assist in lessening the glucose not removed diet. Phenacetin has also been of value. With these drugs I have frequently combined the use of sodium arsenite, gr. $\frac{1}{48}$, and lithium carbonate, gr. 3, in a syphon of Vichy water, and drank in one to two days. In well-marked hepatic cases Carlsbad Sprudel salt, in hot water, before breakfast, has been very efficacious in securing proper bilious stools and aiding our other general measures. For the thirst I allow phosphoric acid lemonade, Poland water or plain water. Complications have been combatted as they presented. By these means a case of diabetes, while perhaps not cured in the ordinary acceptance of that term, may be rendered quite fairly comfortable and life prolonged to almost, if not quite, the ordinary human limit.

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The following cases are reported, because they illustrate well the influence of the exciting causes detailed, and emphasize some points in treatment which I desire to bring into prominence:

Case I. Charles H., age 24. Came under observation in 1885. He was then suffering from free and copious micturition, impairment of vision, headaches, neuralgic in character, moderate thirst, muscular weakness and constipation. He dated the commencement of his troubles from an injury sustained through a breakage in the belting in a manufacturing establishment in which he was employed, whereby was received a severe blow across the lower part of the back, which threw him to the floor, and this was followed by symptoms of strangury and hæmaturia. This was about nine months before he came under my care in dispensary work. The urine was clear, specific gravity 1.030, and presented sugar about gr. 15 to one ounce. On diet the quantity of sugar became so low as gr. 1 to 2, and there remained constant; codeia, gr. ¼ t. i. d., and later every three hours, reduced the sugar to practically nil, and the specific gravity to 1.015. He remained under observation and treatment for about a year, and then passed out of sight.

Case II. William B., age 37, presented for treatment with similar history, of a fall of some twelve feet in a sitting posture in 1882. The course of symptoms was similar, treatment with alkalies and diet, but eventually passed from under my care, only improved, but not free from sugar. The case is cited on account of the well marked traumatic history closely followed by the development of diabetic symptoms.

Case III. Mary G, age 27, seamstress. After severe family trouble, developed in 1889 symptoms of exophthalmic goitre, ultimately presenting the cardinal symptoms, exophthalmos, protrusion of eye-balls and rapid cardiac action with dyspnœa, etc. About six months after the appearance of these symptoms great thirst developed with marked diuresis and gastric disturbance, and examination of the urine showed sugar 6 per cent specific gravity 1.036. Diet was instituted as far as her condition would allow. Strophanthus as a cardiac stimulant and to improve the primary condition. Carbonate of lithium and soda arsenite treatment was followed by a reduction of the sugar to 1 per cent and specific gravity to 1.022. The primary trouble increased, however, and proved fatal in about six months after the glycosuric condition was discovered.

Case IV. L. P., age 64, laborer, developed polyuria three months after an apoplectic seizure. His condition precluding rigid diet, he was allowed a moderate mixed one with codeia sulph. gr. ¼ t. i. d. and extract ergot fl. drops xx t. i. d. By these means sugar was diminished from 10 per cent to 4 per cent and the daily quantity of urine reduced to 48 ounces from 7 pints. Another cerebral hæmorrhage proved fatal after he had been under treatment three months. Seen August, 1890, and died February, 1891.

Case V. Mrs. R., age 42, seen first in 1888, suffering from pruritus vulvae, dizzy feeling in head, confusion of thoughts, dyspepsia and polyuria, menses irregular. Mental worry the cause assigned for the trouble. Sugar 8 per cent, specific gravity L. .040. Daily quantity of urine 6 pints. Under diet and lithium carbonate and sodium arsenite, sugar became almost removed and specific gravity 1.020, daily quantity 50 ounces. Contrary to advice, she relaxed with diet and medicines, the trouble returned worse and has since failed to respond to diet, codeia, etc. General condition remains good up to present, but sugar stands at 7-8 per cent.

Case VII. Chandler R., age 37, business man. Seen first in 1892, after reverses in business, noticed insomnia, frequent calls to micturate and staining of clothing. Sugar, grains 10 to 1 ounce was found; specific gravity 1.036, daily quantity 8 pints. Strict diet gradually instituted with codeia, gr. ¼ t. i. d., and later every 2 hours. This reduced sugar to zero and specific gravity to 1.015, and the case so remains at present under relaxed dietary and no codeia.

Case VIII. Max S., age 29, driver. Habits irregular. Dates trouble to a fall in the Hudson river when intoxicated in March, 1891. Urine abundant and shows both glucose and albumin. Suffers from œdema of legs; breathing short at times. Treatment diuretics, codeia, gr. ¼ t. i. d. He remains, after two years, about the same; sugar 4 per cent, albumin about same amount; specific gravity 1.020.

Case IX. J. P., age 45, attributes his illness to business troubles, but from his history I can see errors of diet, both in eating and drinking, have had much to do with it. Sugar 6 per cent, specific gravity 1.030, daily amount 7 pints. Codeia and diet relieved the urinary condition and after six months was well and has remained so for almost a year on guarded diet.

Case X. C. D. S., age 30, physician. Came under observation in 1891 suffering from thirst, dryness of throat, constipation, gastric distress, pain in calves of legs, etc. Urine light color, specific gravity 1.035, sugar never found in the morning urine, but in the afternoon was abundant. No ascertainable hereditary or other cause. Finally developed pneumonia and died, having responded little to treatment.

Case XI. Miss C. M. W., age 26. Came under observation in July, 1892. Then passing five pints of urine daily, light in color, specific gravity, 1.030, sugar, 5 per cent. Treated with codeia and strict diet. Sugar disappeared in three months, and she has since remained free from any relapse. Cause assigned, shock from the death of a relative in a railway accident.

Case XII. Carrie J. G., age 14. Came under my care in 1891, suffering from œdema of legs. Urine had been very abundant, now scarcity and high colored, pain in head, mostly frontal, dimness of vision, cough, and short of breathing. Urine specific gravity, 1.036, casts, albumin, 5 per cent, and sugar, 10 per cent. Treated with diuretics with some improvement in dropsy, but she became drowsy and finally passed into coma, plainly uræmic, and died.

Cases XIII, XIV and XV are of interest from having each exhibited one or more attacks of dyspnœa with præcordial distress and pronounced acetone odor to the breath and the urine, with drowsiness and sluggish mental ac-

tion, all indicating an impending attack of true diabetic coma of Kussmaul's type. The renal structures were shown to be intact by repeated urinalyses, all of which presented a normal or increased urea percentage and uniform absence of casts and albumin. The diet had been exceptionally rigid, and the glucose had, for some time, been persistent, about two grains to the ounce. Mixed diet was substituted at once with a gradual abatement of the coma symptoms, but the glycosuria was increased to 10–12 grains in the ounce, falling to about the same amount as before the change in diet. These cases well illustrate the liability to diabetic coma which is incurred by a too strict nitrogenous diet and the results obtained amply confirm the statement made in the body of my paper that in the selection of our dietary in diabetic cases, unusual care must be exercised and the general condition chosen as our guide rather than the actual glucose percentage in the urine. The power of assimilating sugar is not totally lost in this disease, and in the average case a small amount of carbohydrates will be consumed in the system and will go to supply elements much needed for the proper maintenance of the same. Hence, I find good results following the allowance of a limited use of whole or ordinary bread and even a little potato, the patient co-operates better with the other therapeutic measures, the digestion is more perfect, the urine approaches closer to the normal standard in other respects aside from the glucose, which is fully as much under the control as with rigid diet, hence, the renal structures are less taxed and finally the blood toxæmia is reduced to a minimum, so lessening the danger of diabetic coma.

Case XVI. T. B. H., age 46, banker, of slender build, has suffered for years from intestinal dyspepsia, flatulence, abdominal pain three-quarter hours after eating, diarrhœal tendency, and stools light in color and of greasy appearance. He came under observation in 1891, while on a business trip from his home in Portland, Oregon. He was suffering from thirst, general pruritus and marked debility. Urine light in color, specific gravity, 1.035, sugar, 7 per cent, daily quantity, eight to ten pints. Codeia and dietetic measures caused an improvement in the glucose appearance, but the dyspeptic symptoms did not yield until a mixture of pepsin and pancreatin was used. Later, raw pancreas was used with pronounced improvement in the dyspepsia and in the character of the stools. The glucose remained at 2 per cent, the polyuria and other symptoms all removed. He left this city after two months' treatment, ten pounds heavier than when first seen, feeling strong and well. The raw pancreas was discontinued when he left here and since then pancreatin alone used. A letter written November 18, 1893, states he retains all the ground gained, but still has a trace of glucose in the urine.

Before closing I wish to testify to the better satisfaction I have derived of late from levulose than from saccharin as a sweetening agent. In many cases saccharin has caused gastric disturbance and been provocative, either directly or indirectly, of an increase in the glucose excretion and at the same time has failed to satisfy the craving of the patient for a real carbohydrate. Levulose sup-

plies an easily assimilated carbohydrate and one which, in moderate amounts, has little, if any, effect on the glucose excretion. The sweetening power is less than saccharin, but it is many times greater than cane sugar.

XXXII. Uræmic Hemiplegia.

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It would seem, in view of the increasing number of reported cases of hemiplegia, which even a cursory search of medical literature discovers, where the paralysis subsequently completely disappears, that a careful study of uræmia as a causative factor should be undertaken. Yet we find that this condition has been denied by such authorities as Addison and Bright in England, and by Lécorché, Sée and Lasègue in France. That such cases have existed and have been recognized is evident, for in many cases the "serous apoplexy" of the older writers is capable of no other interpretation. Finlayson notes that hemiplegia may complicate pregnancy and pass away after labor, and that the urine is almost always albuminous. The stumbling block to the appreciation of uræmia as a valid cause has been that we have a paralysis without an apparent lesion, a symptom *sine materia.* Yet the cases reported, even since 1880, by Charpentier, Pätsch, Jäckel, Raymond, Chantemesse and Tenneson, Bernard, Lancereaux, Level, Chauffard, Dreyfus-Brisac, Florand and Cannoit, Lloyd and Dercum are not susceptible of other explanation. It has been demonstrated to exist by Leyden and Leichtenstern. The convincing papers of Massalongo in Italy in 1889 and Boinet in France in 1892 leave but littl for complete conviction.

The physiology of this condition has been admirably shown by the experiments of Raymond in 1885. On removing the left superior sympathetic ganglion of a rabbit, convulsions occurred in the right side of the body, which corresponds to the side of the brain in which the circulation was affected by the operation. Later the hilum of the kidney was ligated. On repeating the experiment with the right superior cervical sympathetic ganglion, the

convulsions were limited to the left side of the body. On necropsy there was found in both instances a diffused bilateral cerebral œdema, the explanation apparently being that in excising this ganglion there occurs a vaso-motor paralysis of the vessels of the head, brain and its membranes, with vascular alterations. At the moment when the vessels have lost their tonicity, if the renal secretion be suppressed by ligation of the hilum, a dyscrasic cause is added to the lessened resistance of the hemispheres, and œdema will be more pronounced on this side, and here will be found the greatest effect of the uræmic intoxication. Or, in other words, the two halves of the nervous system, under these conditions, possess unequal powers of resistance, and the weaker yields.

The pathology, however, is not quite so evident as the preceding experiments would indicate, because, as it seems, our knowledge of the pathology of uræmia is by no means complete. That a bilateral diffuse œdema should result in unilateral paralysis is in many cases difficult of belief, and as Dercum has pointed out, there may be no more œdema on one side of the brain than upon the other. In the cases of Leichtenstern and Charpentier, however, the œdema was accurately localized. Then, again, as in cases of Level, Chauffard and Lancereaux and of Lloyd, there may be no œdema found on necropsy. Or if the œdema is found, it may not exist where it is expected, as in a case reported by Charpentier, where it was on the side of the brain opposite to the one which would account for the paralysis. However, Lancereaux has found both cerebral œdema and as well, ventricular dropsy. Massalongo points out the resemblance of this paralysis to that caused by other general intoxications, as of lead, carbonic dioxide, carbon bisulphide, arsenic and mercury, as evidence that a general cause may produce a localized paralysis. Indeed the evidence is present that a diffuse, symmetrical œdema may be the cause of an unilateral, asymmetrical paralysis. In diabetes we may seek further for an analogy (the cerebral dehydration of Bouchard), and finally in the auto-intoxicants as acetonæmia, hypoglycæmia, oxybutycacidæmia, may the complete explanation be found. If hemiplegia is not exclusively dependent upon cerebral œdema, we are obliged to admit the action of toxic urinary products and ptomaines upon the nerve centres. In spite of all this we believe that the case of Dreyfus-Brisac is a strong argument in favor of a theory which gives to serous œdema a firm position in the

pathology of uræmic manifestation. The localization or greater intensity of circulatory troubles in the brain may be explained by the analogues of the sudden œdema of eyelids or errant foyers of pulmonary congestion, by no means uncommon in patients suffering from uræmia. In the cases of Boinet and Jäckel, the hemiplegia with hysteriform anæsthesia could only be explained by a sudden fugitive and temporary œdema of the brain which predominated in the cortical motor zone of the left hemisphere. Raymond sums up by stating that the cerebral circulatory troubles may be congestion or anæmia, but in their last analysis it is an "anoxyhemie" of the brain. Raymond believed that atheroma was the connecting link between uræmia and localized paralysis. However, Chantemesse reported three cases in which no lesion of the vessels was found, one of them at the age of 35 and Lloyd's case was only 17, and this has been also noticed by Chauffard and by Level. The heart has been found to be slightly hypertrophied by Pätsch, who remarked in both of his cases arterio-capillary fibrosis. The kidneys show interstitial nephritis. (Lloyd's case, 17 years old, a chronic sot, the pig-backed kidney), or chronic parenchymatous nephritis with atrophy (Pätsch).

The clinical histories of the reported cases present great uniformity of symptoms and signs. Careful questioning is important that the existence of prodromal symptoms shall be clearly established, for upon the presence of these symptoms, and they are rarely absent, is placed great dependence in the diagnosis.

As symptoms: — 1st. Vertigo, often slight; 2d. Gastric symptoms, nausea unrelieved by stomachic medication, vomiting apparently without cause; 3d. Cardiac, which if isolated hypertrophy of left ventricle, it should be remembered that this predisposes as well to cerebral hæmorrhage; 4th. Localized œdema of face, eyelids, patches in lungs.

As signs: 1st. The urine is likely to be albuminous before the hemiplegia appears. If it is only discovered afterward this symptom loses much of its significance, for it is often found in hemiplegia from hæmorrhage or softening; 2d. Persistent low specific gravity of the urine is important and casts, if found, will do much to aid in forming an opinion; 3rd. If only hyaline casts are present, the general import of the urinary findings is increased, for in contracted kidney these may be the only casts present; 4th. If atheromatous changes are apparent, it may be suspected that

the cerebral arteries present the same changes; 5th. If albuminuric retinitis is present, as is rarely found, there is great probability that this is the origin of the hemiplegia.

The cardinal symptom of the attack itself is the sudden attack of hemiplegia, which may or may not be complete. The patient frequently, although not always, becomes comatose, with stertorous respiration. As the patient comes out of this condition the paralysis may be markedly relieved, or it may persist for several days with the same intensity. It may even change sides, as Lancereaux has observed. It may be followed by contractions which are localized in the adductors of the opposite thigh, or in the non-paralyzed arm, as was seen by Raymond. The accompanying facial paralysis is of central origin, and involves only the inferior facial, and is of the side corresponding to that of the body in five cases reported by Jäckel, Raymond and Chantemesse. In the three cases of Bernard, Raymond and Level, the face was not involved. Ptosis is exceptional, a single case of Raymond being the only one hitherto recorded. The morning hemiplegia may be complete, but it may be relieved and may disappear by evening. Aphasia has been observed in six cases (Level, Bernard, Raymond and Lancereaux), coinciding with right hemiplegia. The hemi-anæsthesia is presumably of cortical origin, often less complete and more transitory than the motor paralysis. It may be sensorial as in Raymond's case and in Boinet's (deafness), or it may invade the entire surface of the body (Raymond). It is usually proportionate to the loss of power. If coma is marked there may be a relaxation of all the members and the hemiplegia may be ascertained only as consciousness is restored. At the onset, convulsive phenomena are frequent, a hemi-epilepsy or a hemi-eclampsia, especially in the part which later becomes paralyzed. Jacksonian epilepsy, if present, is important in diagnosis. Conjugate deviation of the head and eyes is not uncommon. Generally the deep reflexes are diminished or abolished, but rarely are they exaggerated. Superficial reflexes are usually impaired. The pulse may be small, but it is not likely to be hard or slow. The temperature was elevated in Chantemesse's and Tenneson's cases even to 104° F. Unilateral deafness has been described by Bright and Barlow, Addison, Lasegue, Routh and Goeles, Dieulafoy, Tissot, Dommergue, Gurnowitch, and which persisted several weeks. In Boinet's case this deafness lasted three weeks.

For five days an amnesis, similar to that which follows eclampsia and carbon dioxide intoxication, persisted in Boinet's case. The pupils are not usually contracted (not in Boinet's case), but if they are, hemorrhage and softening are not excluded.

Sequelæ.—The motor troubles disappear, the sensory conditions return and recent contractures are rare, equally so are late ones. The tendon reflexes of the disabled side may become normal, or, as in my case, exaggerated.

The differential diagnosis is important, but as was shown by Florand and Canniot in one case, it may be impossible. The hemiplegia from cerebral hemorrhage presents many points of similarity. The distinction can be made in that it is apt to cease after the coma, and that it rarely persists for several days with great severity; after a time the uræmic hemiplegia disappears in part or as a whole. Or if another uræmic attack supervenes, the paralysis may be upon the same or the opposite side, nor is it so complete or permanent as in cerebral hemorrhage. The important characteristics are the antecedents of the person, the variability and mobility of the paralysis, the presence of albumin and the low specific gravity of the urine. There is nothing distinctive about the coma or the slow and stertorous breathing. The paralysis in both instances may be preceded by unilateral convulsions resembling those of an irritative lesion of the psycho-motor zone of Jackson, Bravais and Charcot. These convulsions may be clonic, rhythmical, often limited to members which later become attacked by paralysis, or they may be both clonic and tonic at the same time. Leichtenstern attributes these convulsions to localized œdema. Rigidity of limbs or local muscular twitching in paralyzed limbs is in favor of uræmia.

Although both Addison and Lasègue deny the existence of a distinctive uræmic temperature, yet the low temperature so frequently found is a help in diagnosis. Gowers says that in uræmia the temperature is always subnormal except when local influences exist. Yet we do not obtain the profound alterations in temperature which have been so carefully described by Dana, the marked initial fall, the gradual rise of the first three or four days to normal or slightly beyond, nor indeed the slightly higher (one-half to two degrees) temperature in the paralyzed side, nor is it normal on the paralyzed, the subnormal being on the sound side. Perspiration is more likely to be present in cerebral

hemorrhage. Nor are we so likely to have the abundant urine of low specific gravity in uræmia, while albumin and casts are far more frequent. The condition of the deep reflexes, abolished immediately after shock, soon returning and becoming exaggerated in the paralyzed side, may be alike in both instances. But there is not so likely to be inequality in the size of the pupils as in hemiplegia from hemorrhage, nor so great failure to respond to light. If the pupils are normal or dilated we should consider uræmia. But on the other hand we must remember that renal disease is found in one-third of all cases of cerebral hemorrhage (Eskridge), and it should also be borne in mind that the hemorrhage may be due to syphilis.

The mobility of the paralysis recalls that due to cerebral softening from thrombosis, complete in the morning, it diminishes in the evening, and again increases some hours after. Myosis is not a valuable sign, as it occurs in both. Aphasia in right-sided paralysis has only a negative value. The temperature, if elevated, may be due to local conditions in uræmia. If lowered, it points toward uræmia, but not so strongly as against hemorrhage, for, according to Dana, the initial fall in softening from trombosis or embolism is rare, and if the temperature be taken in the rectum, it is of short duration. If subnormal temperature exists, it is only in the non-paralyzed side, and there is a slighter tendency to irregularity in both sides, and a slower rise if it does occur. But if secondary inflammatory symptoms occur, the temperature is well marked (Eskridge), and so this fact would be against uræmia. The urine may also be albuminous, but is not so likely to contain casts as in uræmia. The condition of the heart, which is likely to be feeble, dilated and irregular, may aid in the diagnosis of softening. The arterial degenerations are common in both.

It does not seem necessary that the differential diagnosis between uræmic hemiplegia and tubercular meningitis or hysteria or epilepsy should be given, as the mistake ought not to be made, but, as the various writers have called attention to these conditions, it is well to bear them in mind.

In general, the fugitive premonitory symptoms, localized œdema, pallor, headache, dyspepsia, the variability and mobility of the paralysis, which may or not be preceded by Jacksonian epilepsy, the urinary conditions, the temperature curve, and finally the complete cure, suffice for a cleanly-cut diagnosis.

The prognosis is generally very grave, naturally depending chiefly upon the renal lesion. An elevation of temperature to 104° F. is always of unfavorable portent. In Boinet's case it remained normal; in Chantemesse's case, which recovered, it never rose above 100.4° F. Myosis and conjugate deviation of eyes and head are of grave omen. In the majority of cases of death these three symptoms have been present. The amelioration of the uræmia marks the decline of the hemiplegia. So far as the hemiplegia itself is concerned, total recovery is the rule.

Treatment.—If the general condition permits, bleed (Boinet's case, to 400 grammes, which caused the coma and hemiplegia to disappear). This takes out urea in the proportion of 2.43 *per mille*, with toxic urinary products and ptomaines, and as well relieves the vascular troubles and cerebral œdema which Raymond, Chantemesse, Florand and Canniot have habitually found in autopsy. Drastic purgatives may be useful; elaterin, jalap, with cream of tartar, croton oil in emergency; or purgative clysters, concentrated glycerin-Epsom salt enema. Diuretics may be indicated, as theobromine and diaphoretics, as pilicarpine, if the heart be carefully watched. Digitalis has been recommended if the stomach bears it, but preferable is strophanthus or sparteine. Adonin, as a substitute, should be borne in mind. Milk for nourishment should be insisted upon. Steam baths are occasionally of use. For convulsions, bromide of potassium and chloral are indicated.

In the following case the diagnosis of uræmic hemiplegia was made:

J. M. W., of New York, seventy-five years old, bachelor, living at leisure, of Scotch ancestry, had always enjoyed good health. His parents died at an advanced age, and an only sister of epithelioma late in life. In the spring of 1892, while descending a stairway in a hotel, he became dizzy, fell and was taken to a hospital while unconscious in an ambulance. He recovered within a few hours and was able to return unaided to his home a few blocks distant. While in the hospital, a house physician with more medical ardor than notions of cleanliness, drew off his urine with a catheter. As a result he suffered from a severe attack of cystitis which was treated by several surgeons — internal treatment, washing out of bladder — with indifferent success. The summer was spent at Saratoga where his general health improved, but the condition of the bladder remained stationary. During the fall the cystitis was cured, and beyond an occasional single call to urinate at night, he suffered no inconvenience. When the pus, epithelium and bacteria had been removed from his urine, analysis showed that the amount varied from forty to forty-five ounces in the

twenty-four hours, was always of light color, transparent, of normal odor, specific gravity 1.012–16. It never contained albumin nor sugar, and very rarely a slight indication of bile. The urea was generally diminished; occasionally the uric acid was increased, but as a rule there was diminution of both the alkaline and earthy phosphates, and of the chlorides. The sediment consisted almost entirely of a few stray epithelial cells, chiefly from the bladder, and a few leucocytes. Although not in good flesh, he had fine color, was able to walk without fatigue and in general considered himself well. He did not nor had he ever used alcohol in any form, and he indulged sparingly in tobacco. There was no *arcus senilis*, no pulmonary signs beyond a slightly roughened respiration in mid-chest. His pulse was of fair breadth but of increased tension, yet compressible, generally of the rate of 66 to 70, the aortic second sound was accentuated, and the first sound somewhat shortened, was loud and rather metallic in quality. He was able to read his newspaper with a convex glass of only three-quarters of a dioptre. There were no visual or dyspeptic symptoms, no œdema nor other urinary symptoms. At his dinner on the evening of January 24, he partook of a considerable quantity of indigestible food. He was found by his valet early in the morning of the following day, unconscious; I saw him a few hours later. He had passed urine in bed involuntarily. The body surface was dry, the skin was cool to the touch; with the exception of the upper right arm the muscles of the entire left side of the body were flaccid. The upper arm extensors and flexors were alternately contracting, which kept the arm in slow motion in an arc of six or eight inches, the contraction of the deltoid carrying it slightly outward. The deep reflexes were absent on both sides; the skin reflexes difficult to obtain. Pricking with the sharp point of a Carroll's æsthesiometer was not followed by contraction. The pupils were in mid dilatation but responsive to light, no strabismus nor deviation; the left side of the face was flaccid, with ptosis of left eyelid, left angle of mouth was moving with the stertorous respiration and the saliva freely pouring from the angle. On speaking loudly he became sufficiently conscious to partially protrude his tongue, which deviated to the left. He did not, however, open his eyes, although the right was slightly open. The respiration was 19, stertorous; temperature, 97.3 degrees in both axillæ. During the day the motion of the left upper arm ceased, consciousness was partially reestablished when it was found that swallowing was possible, although with some difficulty, and the temperature rose to 99.1 degrees by night, and was then, as it proved to be throughout his entire illness, the same in both axillæ. During the afternoon the patient became confused and flighty, and late in the evening was bathed in warm perspiration. Examination of urine: quantity, 16 ounces; specific gravity, 1.012; reaction, acid; color, pale; odor, normal; cloudy; appearance of sediment, flocculent; albumin, one-half of 1 per cent by weight; sugar, absent; bile, trace; blood, none; casts, few hyaline; pus, none; bladder epithelium.

January 26. Pulse, 66, of the same character; respiration and temperature as at night; had spent a somewhat restless night, but yet slept at intervals. The paralysis of the face was much less marked; articulation was fairly distinct, but the deviation of the tongue was pronounced. The paralysis of the left side of the body was marked, no evidence of motion,

even on puncture, excepting a fibrillary twitching of the upper arm muscles. Superficial (skin) reflexes exaggerated, and both tendon reflexes were obtained with difficulty. The temperature rose half a degree during the day and at night the paralysis of body was still profound. Examination of urine: quantity, 33 ounces; specific gravity, 1.014; reaction, acid; color, pale; odor, normal; cloudy; appearance of sediment, flocculent; albumin, one-third of 1 per cent by weight; sugar, none; bile, slight amount; phosphates, increased; casts, very few hyaline; bladder epithelium.

January 27. The paralysis became very much worse during the night, so pressure could not be made with the left hand. The patient was irritable, but could speak with considerable distinctness; the temperature was 998; pulse 70, of less tension and quicker; respiration 20. The pupils are now of normal size, responsive to light. The skin is moist, and besides a slight drooping of left angle of the mouth there is little to be seen; the ptosis has disappeared. In the evening, the facial paralysis was relieved to a slight extent, that of the body being less marked. No evening elevation of temperature. Examination of urine: quantity, 35 ounces; specific gravity, 1.014; reaction, acid; color, yellow ;odor, normal; slightly cloudy; appearance of sediment, flocculent ; albumin, one-third of 1 per cent by weight; sugar, absent; bile, absent; phosphates, normal; casts, very few hyaline, and some finely granular; bladder epithelium.

January 28. Without other change in the general condition, the paralysis of the leg appeared to be much more marked, and the tendon reflex of both sides was normal. Temperature, 98.8°; pulse as before. Dynamometer, right, 37; left, 11. Paralysis less marked in the evening. Examination of urine: quantity, 34 ounces; specific gravity, 1.010; reaction, acid; color, yellow; odor, normal; clear; appearance of sediment, slightly flocculent; albumin, one-quarter of 1 per cent by weight; sugar, none; bile, none; phosphates, normal; casts, very few hyaline; epithelium, few bladder cells.

January 29. The paralysis of face has entirely disappeared, the tongue tip on protrusion is almost in the middle line, the intellectual faculties as before the illness, with the addition of considerable impatience. The tendon reflex of left side is exaggerated, that of the right normal. Dynamometer, right, 37; left, 14. The paralysis of the leg has markedly improved, that of the arm less so. In the afternoon, the usual progressive gain of power. Examination of urine: quantity, 36 ounces; specific gravity, 1.015; reaction, acid; color, pale yellow; clear; appearance of sediment, slightly flocculent; albumin, one-quarter of 1 per cent by weight; sugar, none; bile, none; casts, none found; epithelium, bladder cells.

January 30. This morning the temperature is normal, and the patient appears brighter ; the knee jerk on left side more active ; right normal; paralysis less marked than yesterday; sleep has been fair. In the evening the paralysis is somewhat better. Examination of urine : quantity, 39 ounces; specific gravity, 1.012; reaction, acid; color, pale, clear; appearance of sediment, slightly flocculent; albumin, one-quarter of 1 per cent by weight; sugar, none; bile, none; uric acid, diminished; casts, none; epithelium, few bladder cells.

January 31. A marked improvement in all symptoms. Dynamometer, right 38, left 19. Superficial reflexes, normal; tendon reflexes as before.

Evening improvement slight. The temperature, respiration and pulse normal. Examination of urine: quantity, 36 ounces; specific gravity, 1.014; reaction, acid; color, pale, clear; appearance of sediment, slightly flocculent; albumin, one-eighth of 1 per cent by weight; sugar, none; bile, none; casts, none; epithelium, few bladder cells.

February 1. But little change and that in the line of improvement. Pulse is 66, broader and tension less marked. Examination of urine: quantity, 45 ounces; specific gravity, 1.015; reaction, acid; color, pale; odor, normal, clear; appearance of sediment, slightly flocculent; albumin, one-eighth of 1 per cent by weight; sugar, none; bile, none; casts, none; epithelium, slight amount of bladder.

February 2. Steadily improving. Examination of urine: quantity, 47 ounces; specific gravity, 1.016; reaction, acid; color, pale; odor, normal, clear; appearance of sediment, slightly flocculent; albumin, one-eighth of 1 per cent by weight; sugar, none; bile, none; casts, none; epithelium, slight amount of bladder.

February 4. Dynamometer, right, 37; left, 26; paralysis, slight both morning and evening; upper arm and leg muscles but little affected; finer motions of hand are difficult, resulting in much trembling. Examination of urine: quantity, 49 ounces; specific gravity, 1.012; reaction, acid; color, pale; odor, normal, clear; appearance of sediment, slightly flocculent; albumin, trace; sugar, none; bile, none; uric acid, normal; casts, none; epithelium, small amount of bladder.

February 6. Sits up in chair; but little trace of illness, excepting pallor and slight loss of power in left hand. Examinations of urine: quantity, 51 ounces; specific gravity, 1.017; reaction, acid; color, slightly pale; odor, normal, clear; appearance of sediment, slightly flocculent; albumin, trace; sugar, none; bile, none; urea, normal; uric acid, normal; chlorides, normal; casts, none; bladder epithelium.

February 9. Patient is steadily improving. Examination of urine: quantity, 53 ounces; specific gravity, 1.013; reaction, acid; color, slightly pale; odor, normal, clear; appearance of sediment, slightly flocculent; albumin, none; sugar, none; bile, none; urea, diminished; uric acid, normal; chlorides, normal; phosphates, slightly diminished; casts, none; epithelium, small amount of bladder.

February 21. Walks with aid of attendant; left foot drags slightly, although he can stand alone. Urine now as before illness. Appetite good and sleep undisturbed but once for urination. General appearance good.

The treatment in this case consisted in a preliminary purgation, with one-eighth grain doses of elaterin, repeated every two hours until free evacuation of the bowels was obtained. Nitro-glycerin, one one-hundredth grain, or the nitrite of soda, one to two grains, with sparteine sulphate, one-fourth grain, and the caffeine sodio-benzoate, two to five grains, was administered according to the indications as found in the heart and kidneys. During convalescence the phosphate, forty grains, and bicarbonate of soda, fifteen grains, was given in a glass of hot water on rising in the morning, and one-twentieth of a grain of strychnine nitrite before each meal.

Within two months the only indication of the illness through which he had passed was a slight exaggeration of the tendon reflex of the left (formerly paralyzed) leg.

Conclusions.—I. Uræmic hemiplegia is a distinct form and should be recognized as such.

II. The peculiarities are its mobility, variability and complete recovery.

III. The diagnosis rests upon antecedent history, condition of the urine and temperature curves.

IV. The dominating factor in treatment is the uræmia.

XXXIII. Urethral Carunculæ.

By EDWARD NICHOLAS LIELL, M. D.,
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To direct attention to the frequent seat of new growths about the female urethra, is my object in bringing this paper before you. There is hardly any affection to which women are liable which causes greater discomfort or pain than urethral caruncle.

By this term is meant the spongy excrescences or vascular growths arising from the urethral mucus membrane. One is given the impression from their appearance, of a vegetation growing on the mucus membrane. They are of a soft, spongy texture, generally irregular in outline, and of a granular appearance. Their size varies from a pin's head to an ordinary marble—occasionally larger. As to their structure, they consist of hyper trophied papillæ, extremely vascular, the vessels being enormously developed and tortuous; nerve filaments have also been found to exist in them, though their sensitiveness is not positively due to the presence of these. They are of a deep red color, of slow growth, and, as already stated, they are generally exquisitely sensitive to the touch.

My observations lead me to state that when small, these growths are generally sessile; as they increase in size, however, their base forms more or less of a pedicle. In the majority of cases from one to three are present; not infrequently, however, we meet with cases where as many as ten or twelve are found to exist. They are met with either along the borders of the meatus, or

just within it along the lateral and posterior walls of the urethra; at times, when generous in number, they may extend within the canal for an inch or more.

As to their origin, to attribute the development of these neoplasms to any positive element is, at the present day, impossible; their etiology is still obscure. Marriage, with its attendants, is undoubtedly, in the vast majority of cases, the predisposing cause; so far as my own observations go, all have occurred in married women; single women are also prone to them, though rarely. Age plays but little part; though most frequently observed in middle-aged women, they are also met with in elderly women, and still less so under thirty years of age. Records show that other affections of the genital organs are almost inevitably present, and my experience bears this out in every one of the cases observed personally. One case in particular, in which I removed as many as a dozen small growths, the largest the size of a French pea, and of interest to me because of its novelty, was attended with a dilated vein the diameter of a goose quill, along the course of the urethra, and a varicose condition of the anterior wall of the vagina, accompanied by considerable hyperesthesia in the immediate vicinity.

The symptoms to which these neoplasms give rise, and the importance of recognizing their presence, is very evident. When the patient comes to us desiring relief from a certain train of symptoms, we can more easily come to the conclusion as to the true condition of things present. The most important of these is what I would term the characteristic pain. This may be described as agonizing or excruciating, occurring toward the closing act of micturition, and very often continuing for a time subsequent thereto; this pain is of such a character frequently, that the patient dreads the process of evacuating her bladder. The pain may radiate to the hips, lumbo-sacral region, or along the thighs. There is a frequent desire to urinate, accompanied by more or less tenesmus — which, in some cases, is almost unbearable.

Unless the growths are of considerable size, they are rarely attended with hemorrhage. The patient complains also of an aching or pressure, for hours at a time, about the lower pelvis and vulva, increased upon motion or contact from any source. A mild pruritus and burning sensation is occasionally present when the growths are very small and situated about the meatus. The patient

becomes nervous, irritable, and generally depressed, added to which is the attendant general weakness consequent upon the presence of insomnia.

As to diagnosis, the above history, more or less modified perhaps, or the history of painful micturition, gradually increasing, and extending over a considerable length of time, should, more especially in middle-aged women, lead us to suspect the presence of these growths, and an examination of the urethra should always be made. My observations, in as many as thirty cases within the past ten years, lead me to say that the increased size of these growths has little bearing upon the attendant pain and suffering; in almost every instance I have noticed that the small and numerous sessile growths were more sensitive and gave rise to greater pain and distress than those of large size and having a pedicle. It is in this class of cases especially that we meet with greater difficulty in treatment, because of their proneness to return after apparent removal. In many instances, particularly where these growths are of small size and entirely within the canal, separation of the labia alone does not render them visible, the condition of things being passed over and the symptoms readily attributed to a cystitis or urethritis; dilatation of the urethra, however, will render obvious the cause of the patient's suffering, and the necessity for treatment being directed to the true indications presented. It is not unlikely that, where no examination is made, some of the symptoms may in rare instances be mistaken for uterine or adnexa trouble. Then, again, if the growths are of fair size and presenting from, and more or less occluding, the meatus, they may be confounded with urethral prolapse or eversion. These, however, are the rare exceptions, and have but little weight in this paper. And here let it be said, that unless the urethra be dilated for a complete examination, we may not infrequently be deceived by the supposition that the apparent growth or growths about the meatus are the only conditions present. We should have in mind the probability of others existing within the meatus or along the canal, and a thorough examination made throughout.

In the treatment of these cases we will find that the condition is at times very troublesome, not to say difficult, and not attended with any degree of immediate satisfaction. Even following their apparently complete removal, not a few seem to defy our efforts toward a successful treatment; patience and perseverance, how-

ever, on the part of both physician and patient, will ultimately accomplish the desired end. Cocaine anesthesia is to be resorted to preliminary to treatment; occasionally, we will be obliged to resort to general anesthesia.

The methods advocated and employed by me in the removal of these neoplasms are those of torsion and excision. When small, they should be drawn down and held in view by means of a tenaculum, and then either twisted off if possible, by means of a small, curved serrafine forceps, or they should be dissected out, cutting them off completely at their base by sharp-pointed scissors. Torsion gives rise to but slight, if any, hemorrhage; even in excision hemorrhage is usually inconsiderable; if it be rather free or persistent, the application of Monsel's solution of iron or the actual cautery, or, if need be, tamponing the urethral canal temporarily with a conical plug of iron cotton will arrest it. Twice I have had occasion to resort to the sharp curette, where the growths were well within the canal, numerous and aggregated, being difficult of complete excision by the use of scissors. More rarely, where the growths are single, of large size, presenting outside of the meatus and affording an easy pedicle, the ligature or actual cautery may come into play in their removal.

These radical measures of treatment have always been followed by the immediate application of a solution of nitrate of silver, repeated each alternate day for a considerable length of time, with added gentle dilatation, beginning at first with ʒ j to ℥ j, and gradually reduced to gr. x to ℥ j, as much to do away with an irritable condition of the mucus membrane generally present as to prevent their return. Should these growths nevertheless show a disposition to return, as they occasionally will do, more especially to those of small size, the above measures of treatment should again be carefully gone over with. The use of the catheter is rarely required subsequent to operative procedures. Very rarely indeed, we may meet with cases where treatment, directed to the condition itself, results in complete failure. Such a case came under my observation some four years ago, in which I assisted Dr. Sims in performing an artificial vesico-vaginal fistula two years later, in order to give complete rest to the urethra, and in the hope of eradicating the trouble by this means; four months ago the fistula was closed by operative procedure, and the result has been all that could be desired.

XXXIV. Treatment of Endometritis.

By HERMAN E. HAYD, M. D., M. R. C. S., Eng.
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The pathology of pelvic inflammation teaches us that the endometrium plays the most important role in connection with the diseases of the uterus and its adnexæ. The lymphatics and cellular tissues, which so intimately surround the uterus, are, no doubt, frequently the channels of transmission of puerperal infection to the peritoneal cavity; but the vast majority of infective poisons find their starting point in the lining membrane of the uterus and by continuity of tissue extend to the tubes, ovaries, peritoneum and abdominal viscera. We are, therefore, confronted with the important practical question, how shall this inflammation be best treated, and what means shall be adopted to confine it to the uterus, or at all events, lessen its disastrous effects upon the adjacent and contiguous structures.

All intra-uterine manipulations are associated, necessarily, with some degree of danger, and a simple and benign endometritis, or better, metro-endometritis, or even metro-endosalpingitis may, by reason of such treatment, assume active and dangerous intensity. Moreover, it must always be borne in mind that these conditions are often due to, and dependent upon, some general systemic condition, as gout, scrofula, syphilis, simple but prolonged anemia, bad hygiene, social and sexual excesses, etc., and require no local treatment whatsoever, and are often relieved and even cured, by proper constitutional measures. But unfortunately, metro-endometritis is often a very chronic and intractable disease, and if not cured is capable of extending its mischievous effects upon so many important structures, that, in addition to constitutional agents, local and topical applications become absolutely necessary.

We may classify endometritis into acute, subacute, and chronic; and, according to its location, into cervical and corporeal. True, this is but an arbitrary and conventional classification; yet it embraces all the clinical features, as well as the pathological conditions assumed by the disease, whether of puerperal, post-puerperal, gonorrheal or traumatic origin; or whether a simple catarrh, granular, fungous, or ulcerating process.

Acute endometritis or pelvic inflammation is treated as one would treat other inflammatory conditions: rest in bed, opium or codeia for the pain, hot fomentations to the lower abdomen, and hot vaginal douches if soothing, grateful and well-borne, a nourishing but simple diet, and daily soluble movements of the bowels, if possible. A brisk cathartic at the onset of the attack is often capable of aborting what might have been a very pronounced peritonitis. If an acute specific cause can be demonstrated — as for instances, gonorrhea, decomposing detritus after abortion or labor or trauma the result of criminal attempts at abortion — under the strictest antiseptic precautions, the uterus should be thoroughly dilated, washed out with a weak corrosive sublimate solution 1–5000, and curetted with a sharp spoon; then again irrigate the vagina and uterus thoroughly and leave in the uterine cavity a suppository of iodoform. This I have repeatedly done, and invariably have lessened the pain and distress, reduced the temperature and pulse, and I am satisfied shortened and sometimes aborted the course of the disease. There is no place in surgery where this great surgical principle of drainage is more indicated than in these cases, because they manifest the greatest tendency to chronicity, and are associated with such dangerous complications and irreparable mischief to the tubes and surrounding tissues. By its timely employment life can often be saved and the usefulness of important structures maintained. I am inclined to believe that intra-uterine injections are unnecessary if this procedure has been carefully carried out; and, consequently, the dangers and pain due to the frequent handling of the parts are minimized.

The treatment of subacute and chronic metro-endometritis is more elective; therefore, there are many different methods of procedure, and each one accomplishes more or less good according to its applicability. If there be a pronounced laceration of the cervix, with ectropion of the lips, and a persistent and recurring ulceration a properly performed Emmet, preceded by curettement, will give the greatest satisfaction; and in fact, if the chronic inflammation and hypertrophy be due to sub-involution, consequent upon the laceration, nothing short of this operation will cure the case. Applications to the endometrium of Churchill's tincture of iodine, or two parts iodine to one of carbolic acid, or a strong solution of nitrate of silver have good effect. Painting the vault

of the vagina and cervix with iodine, and well-applied tampons saturated with gylcerine or boroglycerine 30 per cent, or ichthyol 15 per cent with gylcerine are also indicated. It is also in this class of cases where intra-uterine galvanism is so signally beneficial; and why there can be any doubt as to its efficiency is a growing surprise to me. Malposition and displacements must also be corrected, if possible, by proper fitting pessary. In making applications to the endometrium, one important point must always be borne in mind; be as aseptic as possible and be certain that the internal os is patulous, so that the fluids and discharges can find egress, as drainage must be provided for, otherwise colic, pain, and a slight, or even a very severe peritonitis can result from these trivial and apparently harmless applications.

Endometritis is not usually an uncomplicated affection, but the inflammatory process has extended to the tubes and ovaries and peritoneum. Fixation of these important structures has taken place and their secretions are retained. Now comes the important question: Is the endometritis, which was responsible for the salpingitis and ovaritis and peritonitis, the point of surgical attack; or has it ceased to be an important factor when the tube and ovarian mischief can, with reasonable certainty, be felt and diagnosticated?

Naturally, the more the source of irritation is endometrial, the more we can expect from local and conservative treatment; while, on the contrary, if tubal and ovarian disease exist to any great degree, ablation of the offending organs is, perhaps, the only hope of relief. As a result of these premises, two great schools of pelvic surgery have their existence,the one believing that endometritis seldom requires any special treatment other than good hygiene, absence of sexual relation, good food, and good environment, tonics and daily soluble movements from the bowels. In other words, ill-health and much suffering indicate not simply a condition curable by simple means, but serious tube and ovary mischief, curable by no means short of an abdominal section. On the other hand, I believe there is a growing feeling in the profession, that conservative treatment is much more often called for, and that the endometrium is the seat of progressive mischief. About ten years ago, Dr. Gill Wylie brought to our notice his stem drain, which he introduced into the uterus after curettement, and, three years ago, Dr. William Polk emphasized that treatment by giving

us his simple but very efficacious operation, and with it a report of a large and extremely interesting class of cases, in which there was considerable tubal and ovarian mischief kept up and dependent upon endometritis. So favorably has this method of treatment been received that many operators have extended its range of usefulness, and first curette, and pack the uterus before doing a section, so as to get a perfectly clean field, and either complete the section upon the same day or a few days later. It is claimed, and I believe justly, that the great advantage of packing the uterus after curettage, is that it stimulates quicker and more perfect involution; that it promotes more perfect and permanent drainage by insuring patency of the cervical canal; that it assists in the restoration of a misplaced organ by supplying a soft support as well as drain; and that the mucous walls of the uterus being separated by the gauze, a healthy epithelium is soon produced.

I have seen the most inveterate cases of leucorrhea and metrorrhagia and painful menstruation cured by this simple procedure, when a long course of uterine applications, fraught with infinitely more danger, had failed to bring about any permanent improvement. Cases, moreover, complicated with considerable tubal and ovarian mischief and sterility, as well as general ill-health, have been speedily benefited; and maternal functions and responsibilities have been assumed and future good health and happiness accomplished. I prefer to do this operation in those ambulatory cases where there exists some tubal thickening, and where intra-uterine manipulations cause much pain and distress, believing that it is less dangerous to thoroughly clean the uterus and provide suitable drainage at one sitting than to subject the patient to the possible dangers of increasing tubal and ovarian trouble by too frequent intra-uterine medication.

Of course I do not wish to be understood that this operation is to take the place of the brilliant surgical procedure, salpingotomy and salpingo-oophorectomy; because nothing short of a laparatomy can cure a big pus tube with its accompanying ovarian abscess; but I do believe that tubal and ovarian inflammations, dependent as they often are upon endometritis and short of pus collections, are often cured by dilatation, curettement and uterine drainage, and without adding a large element of danger either to the existing inflammations, or to the possibilities of remoter mischief.

XXXV. Treatment of Depressions in the Skull of the New Born.

By DAVID D. JENNINGS, M. D.,
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This subject has not had the consideration its importance deserves, for, while it is not a common injury, it is liable to occur in the hands of any general practitioner, not only in forceps and breach cases, but also in unaided deliveries.[1] As the treatment of these cases is entirely overlooked in the text-books, I bring it to your attention with the hope that a satisfactory plan of treatment will be outlined, so that, in these days of advanced cerebral surgery, more will be done than leaving them to nature, as is the treatment of to-day.

By depression I refer especially to the indenturing or bending in of the bone, with or without fracture, not the simple overlapping of a suture. It is most commonly found in the frontal and parietal bones, and less frequently in the temporal and occipital.

The books say that these depressions come right of themselves, due to the intracranial pressure and the resiliency of the bone, and give the remarkable case of Duges[2] as an example. He gives an instance of great depression in one of the parietal bones, not followed by any serious consequences. The child was delivered by the feet, through a pelvis of which the conjugate diameter was estimated at three and a quarter inches. Powerful traction upon the shoulders and upon the lower jaw was necessary to bring the head past the obstruction, and the parietal bone, which was in relation with the sacro-vertebral angle, presented a depression half an inch in depth and two inches in width. The infant was resuscitated with difficulty, then had convulsions, but in a few days was quite well, and in fifteen days the depression had entirely disappeared. The fortunate outcome of this case would in these days be no excuse for allowing a child to lie in convulsions for days, when we have a means of prompt relief at our command. It is unreasonable to expect this favorable outcome in the majority of these cases, and, when we consider the serious consequences of these early convulsions, we are justified in removing the cause.

These cases do not always come right of themselves, and, from

the cases that have come under my observation, I would say that frontal depressions rarely do. Cases of marked depression in each of the cranial bones are on record,[3] and serious consequences have followed.

Dr. Wharton Sinkler[4] says: "A few days ago I saw a child with right hemiplegia, and the mother stated that the child had been delivered by forceps, and that immediately after birth there was a deep depression behind the left ear. I found, upon examination of the child, who was now sixteen months old, that the depression still existed in the mastoid process. There was right hemiplegia present. The right leg was spastic, and the movements of the arm limited and inco-ordinate."

Mr. Charles Mercier[5] reports a case of hemiplegia from injury to the cranium by forceps during delivery; "Mary Ann B., aged 37, has right hemiplegia. The arm is quite incapable of voluntary movement, is smaller in all its dimensions than the opposite limb, and is severely contracted, so much so, that the palm and palmar surfaces of the extended fingers lie in contact with the front of the forearm. The right leg is paralyzed and contracted, but to a less degree than the arm; the right foot is smaller than the left, and, owing to the contractions of the calf muscles, she is unable to put her heel to the ground. On the left side of her head is a deep curved groove, beginning vertically over and one inch above the ear, and running forwards for about an inch. It then curves upward with a bold sweep, and, becoming shallower, finally runs backward and is lost between the vertex and the parietal eminence. The groove is about half an inch wide, the concave edge steep, the convex edge beveled. Over the anterior inferior angle of the parietal bone, where the groove is most marked, it is about an eighth of an inch deep; but the tension of the skin serves partially to obliterate the depth, which is found by the touch to be greater than appears. Over this portion of the groove is a considerable cicatrix. The patient has been hemiplegic from birth, and has had the groove on her head also all her life. The mother had often told her that "instruments" were used at her birth." After giving this history, he makes the following remarks: "There can be no doubt about the obstetric origin of this deformity and paralysis; and, having regard to the high elasticity of the new born skull, and the deep indentations often visible on the heads of children delivered by

the forceps, indentations not only in the caput succedaneum, but actually involving the bones, it is questionable how far this extreme case is a representative of others in which, the violence being less excessive, the external traces do not persist, but the damage to the brain remains irretrievable. Cases of congenital hemiplegia are common, and in two cases I have been able to prove that the arteries supplying the atrophied convolutions were pervious."

Lusk,[6] when called upon to settle a dispute which had arisen between two practitioners as to the advisability of trephining the frontal bone for a depression, says: "I am not sure that this might not be good practice in some instances, but so far we have had no experience as regards results."

I have the pleasure of reporting a successful trephining for this condition, which I did, at the urgent solicitation of the father, on an infant forty hours old.

On the 26th day of February, 1893, I was called to see an infant who had just been delivered by the forceps. The left frontal bone was deeply depressed, presenting a concave instead of the usual convex surface. The depression, smooth and cup-shaped, was more than half an inch below the surface, and was so disfiguring that the father wished something to be done at once for its relief. In the absence of symptoms, I advised delay to give nature a chance.

Forty hours after birth, the head having assumed its normal outline, with no improvement in the depression, I operated, with the aid of Dr. Philip Scheu, after suction with a sucking-glass as recommended by Paré and Hildanus in fractures in young children, and practiced successfully by Larkin[7] in a similar depression, had failed. The scalp having been thoroughly cleansed, a Y-shaped incision was made over the center of the depression, the periosteum incised and stripped back sufficiently to apply a small trephine, one-half inch in diameter. A button of bone of considerable thickness was removed, and the surrounding bone lifted into position with an elevator. After cleansing the wound with a weak carbolic solution, the button was replaced, and the wound closed with catgut sutures, using a few strands of catgut for drainage. Antiseptic dressings were applied, and the infant was soon quietly nursing at its mother's side. The operation was simple, and apparently without shock. No anæsthetic was employed, and it was not necessary to tie a vessel. The catgut drainage was removed on the following day. The wound healed by primary union. The child slept and nursed well, and made an uneventful recovery.

Gross[8], in speaking of the operation of trephining in early childhood, says: "The utmost caution is required, otherwise, as the skull is very thin and destitute of diploë, there will be great danger of injuring the membrane of the brain, the more especially

as the dura mater adheres with extraordinary firmness to the inner surface of the cranium." In my case I did not experience any difficulty in removing the button after it was separated, and in the cases I am about to refer to the dura mater must have been separated from the bone for as much as an inch without any injurious result. While this is the first trephining, it is not the first operation performed for this condition. Dr. Tracy[9] raised a depression in the frontal bone by making an incision just forward of the fontanel, and passing in a small pair of curved scissors (which he used as an elevator), between the bone and the dura to the center of the depression. After two or three unsuccessful attempts, he succeeded in snapping the bone into place. The child was well years afterward. Dr. Sinclair[10] reported a deeply-indented frontal bone occurring in a forceps delivery, but not due to the instruments, as the forceps marks were on other parts of the head, and says: "The disfigurement was so marked that the child's father declared he would rather it should die than grow up with such a mark." "As no external pressure produced any effect, an incision was made near the anterior fontanel, into which an elevator was introduced, and passed through the frontal suture, between the dura mater and frontal bone, to the point of depression. After three ineffectual attempts, the depressed bone was raised to its normal position. Water dressings were applied, and the child recovered perfectly." Dr. Irving W. Smith[11] reported last year two cases of depression due to instruments. The first infant had a fronto-parietal depression, and developed obscure symptoms, from which it died after about twelve days. In the second case the depression occupied the right frontal bone, and was three inches long, two wide and half an inch deep. The child was constantly crying, and nursing and sleeping little. Profiting by his experience in the former case, he operated on the fourth day, raising the depression, after dividing the bone with a Hey's saw transversely to the axis of the depression, with an elevator applied successively on either side of the saw-track. A slender long spicule was removed. The operation under anæsthesia was without shock, and the child slept and nursed normally from the hour of the operation. These four cases are all I have been able to find where an operation has been performed. They were successful, and, if serious

consequences do follow as a result of these depressions, these infants have escaped.

I believe you will all agree with me that if symptoms accompany the depression, it is our duty to operate at once, but how shall we treat that equally large class of cases where there are no immediate symptoms? Here there are two indications. 1. To prevent subsequent brain trouble. 2. To relieve the deformity. The first indication is the only one to be seriously considered, as the growth of hair would hide the disfigurement in any region but the frontal.

Fritsch regards these cases as generally fatal, for, even if the child cries lustily after birth, in a few hours it becomes drowsy, and dies from stupor. Schrœder[12] collected sixty-five cases of spoon-shaped depression; of these, thirty-two were fatal and thirty-three survived. Of the fatal, twenty-two were born dead and ten died shortly after birth.

As we have no collected testimony as to the results of these depressions in infants, we are compelled to make a comparison with the same class of cases in older children and adults. This will not be entirely satisfactory, as in infants we have the presence of fontanels and sutures to allow of some compensation. We have, however, the cases of Sinkler and Mercier, previously quoted, to show that permanent injury does sometimes follow these depressions, and it is a question how many cases of hemiplegia are due to the results of these injuries after the depression itself has disappeared.

It has been, and still is, a disputed point as to whether a simple depression in the adult head does cause symptoms, and also whether an operation for its relief is justifiable. The latest text-books advise us, and it is the practice in our large hospitals, to operate for the relief of simple depression, and so avoid the subsequent dangers, *i. e.*, insanity, epilepsy, persistent headache, etc.

Dr. Agnew[13] recently writes: "The doctrine that depressed fractures of the skull without symptoms required no operative interference, a doctrine, which in the past has been so deeply rooted in the professional mind, I hold to be responsible for many, very many of the unfortunate sequels of head injuries. However small may be the depression which follows a fracture of the cranium, save in one or two localities, it will encroach enough upon the dural nerves to cause more or less irritation which, though

insignificant at first, and not at all recognizable to the consciousness of the patient, yet eventually that irritation will be propagated to the meninges, and later on to the cortex and brain ganglia, until finally the paroxysmal explosion occurs, and then even when the initial lesion is removed, the slowly-established habit, created by years of excitation, will remain as an ineradicable legacy. No amount of foresight can determine what happens to the inside of the skull, after the reception of an injury, by the inspection of its external surface, the physical properties of the two being so very unlike. Whenever, therefore, in my judgment, the profession can accept the doctrine that all depressed fractures of the cranium, however slight may be the depression, and entirely irrespective of pressure symptoms, are proper subjects for trephining, then will traumatic epilepsy largely disappear from the list of surgical diseases."

Some claim that you must have a spicule of bone irritating the brain; a laceration of, or hemorrhage causing pressure on the brain to produce symptoms, but a case that came under my observation while interne at Bellevue Hospital, inclines me to side with those who believe that depressed bone alone will cause irritation. A child, three years of age, was carried into the hospital in his mother's arms to have a scalp wound dressed. While waiting his turn the boy had convulsive twitchings of eye-lid, and upper and lower extremities of the left side; right side motionless. He had fallen from a truck upon the top of his head, and received a compound depressed fracture of the right parietal eminence. After the cup-shaped depression was raised by trephining just outside of fracture, the symptoms of compression were immediately relieved, and the boy felt so well on the following day that we kept him in bed with difficulty. There was no evidence of injury to the brain or membranes, and the symptoms appeared to be due entirely to the depression.

It is also a fact that the simple removal of depressed bone has cured cases of epilepsy,[14] paralysis,[15] and headache that have lasted for years.

If, then, in the adult, where the cortex is alive to the least irritation, it is unwise to allow a depression without symptoms to remain untreated, is it not also unwise to wait for symptoms in infantile depressions, when it is a fact that very great damage may be done to an infant's brain because the cortex is unde-

veloped, without producing a cerebral symptom? In Dr. West's[16] case, the child did not present a symptom of injury to the head, with the exception of a hæmatoma of the scalp, until the twenty-third day after birth, when it became drowsy and had convulsive twitchings of face. On the twenty-sixth day it developed general convulsions and died. At the autopsy, a fissured fracture of the parietal bone was found, with an effusion of blood more than half an inch in thickness occupying the entire fossa of the parietal bone, all firmly coagulated and not of recent date. The right hemisphere was pale, bloodless and very soft. There was no fluid in the ventricles, and but little blood in the sinuses. In this case "no symptom of affection of the brain appeared till the twenty-third day, and death took place on the twenty-sixth."

E. Barrie[17] reports the case of an infant one month old, who at birth presented a deep lozenge-shaped depression occupying the space between the anterior fontanel and the bos frontis, who died suddenly, the only sign of sickness being a convulsion ten days previous after which the infant was as well as ever. At the autopsy, the organs were found normal, and there was no alteration in the brain with the exception of an excavation to allow the depressed bone to rest in.

When shall we operate? Immediately, if there are symptoms. If there are no symptoms, we may wait a few weeks to give nature a chance. If she is to succeed, she will do most of her work in the first few days. Whatever improvement takes place after that time is more apparent than real, as it is very probable that the concavity is partially filled with new tissue. I say this because at some of the autopsies the bone was unnaturally red, and the periosteum very much thickened. As some French writer puts it, the periosteum was "recovered."

How shall we operate? By trephining, as it is applicable in all situations, is safer than using the Hey's saw, and besides giving a better opportunity to work, it allows of the inspection of the underlying parts.

Conclusions: 1. Use pnuematic traction. If this fails, trephining is the best operative procedure; 2. Trephining, *per se*, is not a dangerous operation; 3. The removed button of bone can be replaced with good prospect of its union, on account of the vascularity of the bones at this age; 4. Frontal depressions rarely right themselves; 5. Operate at once if there are symptoms; 6.

If the depression is still exaggerated at the end of two weeks, operate to prevent subsequent brain trouble, and relieve the deformity.

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DISCUSSION.

Dr. A. H. CURRIER, of New York : It is within the observation of all that certain injuries which accompany obstetrical operations are attended by such results as have been mentioned in this paper. Dr. A. Jacobi has also called attention within recent years to the occurrence of these same phenomena where labor has been long and the pressure on the child's head severe. I think we must all have some hesitancy in performing an operation of this kind on one of such tender age, not that new-born infants do not stand to an astonishing degree surgical injuries of grave character, which are sometimes unavoidable, but because it so often happens that injuries of the kind which is under discussion are relieved spontaneously if left alone. In most cases which I have seen where injuries to the cranium have resulted from obstetrical operations, the result has been fatal. But I have no doubt that cases occur in which the treatment recommended by Dr. Jennings is the correct and only proper one.

Dr. CARTER S. COLE, of New York: I am interested in the subject, having made observations on depressions and fractures of the skull in the Chambers Street Hospital. As the paper was not confined to infants but introduces general remarks on the subject, I feel it is not improper to call attention to the fact that it is not the depression so much as the attendant injuries to the vessels of the

brain and to the brain substance itself which demand attention. You may relieve a considerable depression of the skull and yet relieve none of the conditions associated with the pressure—hemorrhagic effusion between the membranes on the surface of the brain, laceration of brain substance and other factors in causing convulsions. Therefore our attention should be directed rather to the probable injury caused at the time to the brain membranes and to the brain substance, and to the vessels than to the actual depression presented. The same thing in regard to depression. We know that we may have considerable depression, with no symptoms at all at the time the injuries were received, whether from forceps or any other cause, and yet later convulsions will obtain and death follow. I saw one infant die from forceps compression within twenty-four hours, where I feel perfectly sure an operation would have relieved the compression and possibly averted death. In regard to the use of the trephine, in the adult my experience has been that the trephine is seldom justifiable, for the reason that the loss of bone is greater when it is used. There is seldom any depression that cannot be relieved with the chisel and elevator. I am speaking of adult cases; it does not seem irrational to apply the same principles to the treatment of infants.

Dr. A. M. PHELPS, of New York: I must indorse almost every thing Dr. Jennings said. I have had something to do with this class of cases. I have here a photograph of a child operated on in the Post Graduate Hospital, four and a half years old. It was injured from child-birth; instruments were not used; depression over the left parietal bone. Child had convulsions soon after birth, then convulsions once a month till I saw it last spring. When it came to the hospital the child was not only suffering from epilepsy, but also had paralysis of the right leg, and a squint of the left eye. I made an incision and removed two inches square of the parietal bone, which I again placed in position and the wound healed over it. Within a week the paralysis had almost entirely disappeared, the strabismus had entirely gone, and the child at the end of six weeks was discharged cured. Six weeks ago the mother appeared again with the child, and reported that the child had had one or two convulsions. I think the piece of bone returned had united too freely to the dura, contraction had taken place, and, as a result, great pressure was exerted on the brain. I operated again, and removed the bone; within twenty-four hours the paralysis ceased, the strabismus entirely disappeared, and the child, to all appearance, is to-day well, and will be discharged from the hospital

if contraction does not take place again. I believe that when depression is found at the time of birth, it is the duty of the surgeon to keep that case under observation, and operate whether there are symptoms or not before three months. No one knows when convulsions may begin. In one case that I operated on they did not begin till after three years. I would always use the trephine, return the bone, pull the scalp over it, and you will get good results.

XXXVI. Some Cases of Head Injuries.

By HERMAN MYNTER, M. D.,
BUFFALO.

During the last two years I have had the occasion to trephine twenty-seven times. Of these the majority, fifteen in all, were made on account of fractures of the skull. They represent all forms of lesions, from compound and comminuted fractures extending into the base, with laceration of membranes and brain, to simple depressed fractures of the vertex. Four of these cases died, all of which had extensive fractures of the base of the skull.

Five cases were operated on account of traumatic epilepsy, four of which were greatly improved, although a cure was probably not obtained in any case. Five cases were operated by linear craniectomy for microcephalus with idiocy, without any apparent improvement in any case. One case was trephined for subdural hemorrhage with aphasia and hemiplegia, and recovered perfectly, and one case recovered, after trephining, from a brain abscess. All operations were performed with the usual precautions in the Sisters' Hospital, and all recovered with the exception of four with necessarily fatal injuries of the base of the skull. In regard to covering the bony defect after trephining, I have tried to implant a layer of leaf-gold unsuccessfully several times; granulations occurred on both sides of the gold, forming a semi-fluctuating, painful swelling, which necessitated its removal. I have twice successfully implanted a celluloid plate covering the defect and inserted beneath the internal table. In one case I reimplanted successfully the whole bony disk removed by a very large ($1\frac{1}{4}$ inch) trephine. This is, of course, the ideal proceeding. In several

operations for traumatic epilepsy I covered the dura mosaic fashion, with bits of the bone removed without paying any particular attention to whether the internal table of the bits of bone turned inward or not. I thereafter closed the wound without drainage. All the cases, with the exception of one, in which suppuration occurred and the bone particles had to be removed, recovered without complication, and adhesion between the dura and the scalp was most successfully prevented. Where the laceration of dura and brain was present, this method, of course, cannot be used, and in such cases I always pack the wound loosely with iodoform gauze, and expect healing by granulation.

Three of the cases deserve special mention:

Case I. Trephining for subdural hemorrhage with aphasia and right-sided paresis. Recovery.

Daniel Blackford, 25 years of age, entered the Sisters' Hospital on November 13, 1893, with the following history: Twelve days previously, while in a fight, he was struck by his opponent's fist on the right side of the head and knocked down, striking the left side of his head on the plank sidewalk. He was able to walk home, but his face and eyes were swollen and he complained of severe pain in the back of the head. Nothing further could be learned about his condition, while at home, except that he, on the day of admission to the hospital, had had a fit with convulsive movements of right side of face and arm. While being prepared for bed he had another fit with similar muscular contractions in face and arm.

On examination paresis was seen of the right side of the face; there was constant twitching of muscles of right hand and arm; tongue drawn toward the left side; left pupil contracted. He experienced some sensation in arm and leg, but apparently none in the face. There was some paresis present of right arm and leg, which he moved with difficulty. Complete aphasia present. He could neither articulate nor did he appear to understand what was said to him. Temperature, normal; pulse, 96. Ice to the head; iodide of potash gr. x; fl. ext. ergot min. xx every four hours.

On the day following, November 14, he appeared somewhat better, could raise arm and leg at will, although with difficulty, and seemed to understand questions and to make an attempt to answer, but he was unable to utter a sound. He was restless and sleepless. Pulse 120. After consultation with Dr. Crego, the neurologist to the hospital, who concurred in the diagnosis of a clot on the brain, either extra or intra-dural, over the center of speech, extending upwards and involving the motor area on the left side, operation was decided upon and performed on the following day, November 16, after the usual antiseptic precautions had been taken. A curved incision, convex downwards, was made from the external lower border of the frontal bone downwards and then upwards, terminating just above the ear. The large wing of the sphenoid and the temporal bone was exposed and by aid of a large trephine, one and one-quarter inch in diameter, a button of bone removed over the base of third frontal convolution, involving the center of speech and face. No external bleeding was found.

The dura was bluish in color and bulged forward, showing great pressure behind. No pulsation was seen. A small puncture was made through the dura, through which a fine stream of old blackish blood squirted several feet in the air. The dura was therefore freely opened, and a large amount of similar blood, estimated at three ounces, evacuated. A large blood-clot now appeared, covering an area of about three square inches and being about one-quarter inch thick. It extended upwards and backwards, was firmly adherent and removed with difficulty, partly by aid of forceps, partly by sharp spoon. Pulsation of the brain was thereafter plainly seen. The brain seemed excavated and pressed inward where the clot had been removed. The wound was thereafter thoroughly irrigated with warm sterilized water, the dura sutured with fine cat-gut, the button replaced, the wound closed without drainage and antiseptic dressings applied.

The further course was very favorable. The wound healed by first intention. Two days after he could say yes and no, and count to four, and two days later the aphasia had disappeared; the patient was able to talk freely, although pronouncing some words with hesitation and difficulty. The paresis of arm and leg disappeared completely in a week, and the patient got up. On his discharge four weeks later, it was noted that vocal fremitus over left side of head was normal, the pupils normal in size and reaction. Paralysis of the face had entirely disappeared, and the condition of the facial nerve was normal. He was able to draw the face to either side and raise the nostrils. Tongue could be protruded without deviation to either side. His right hand was somewhat weaker, registering 70; to left, 90. Knee-reflexes normal, muscular power and sensibility perfect. Aphasia had completely disappeared, memory was perfect, and he left the hospital mentally and physically completely restored.

This case is of interest on account of the correct diagnosis, verified by prompt operation, the replacement and successful implantation of the large button, by which adhesions of dura to the skin and possible future troubles were avoided, the rapid disappearance of all the serious symptoms and the complete restoration of the patient to health, and of his assailant to liberty. I wish here to call the attention to the dangers of using strong antiseptics in operations on the brain. Physiological investigations have shown, as published in Deutsche Medicinische Wochenschrift, that the brain is extremely sensitive to chemical irritants, and it was found that carbolic acid in strength above 1 to 200 speedily produced death, and that corrosive sublimate, even as weak as 1 to 10,000, inflicted severe injury upon the brain tissue. I believe that nothing but sterilized water ought to be used in brain injuries or operations.

Case 2. Trephining for abscess of brain. Recovery.

G. B., 4 years of age, entered the Sisters' Hospital on November 22, 1893. Eight weeks previously he had been injured on the top of his head

by a "rasp" which some other boys were throwing up in the air. The injury consisted of a punctured wound of scalp and skull. No physician was called, the wound was bandaged at home, and the little boy continued playing. The next day head was swollen and the boy remained in bed all day, but thereafter he apparently got well and continued healthy for six weeks. Two weeks before admission he began to get easily fatigued, looked pale, had slight fever at night, attacks of vomiting and increasing drowsiness and stupor. One week later the family physician was called, found the boy with a fever of 103, rapid pulse, mental dullness and stupor. He advised his removal to the hospital, but the parents first consented one week later, as he rapidly was growing worse and the stupor was increasing. On examination he looked pale, with heavily coated tongue, slight facial paralysis on left side, otherwise no symptoms of paresis. He was in a state of stupor, fretful and peevish, and could not, or would not, answer any questions. A small scar was seen on the top of his head, to the right of the median line and just behind the coronary suture. Temperature, 103; pulse, 130. The symptoms indicated a brain abscess, and after consultation with Dr. Crego, exploratory trephining was advised aud performed immediately.

A downward convex incision was made circumscribing the scar. After the periosteum had been removed, a small opening filled with granulations was seen in the skull. A half-inch button was removed with the trephine outside the hole and a rim of bone removed around the hole with cutting forceps (Keen's). The dura mater thereafter bulged into the opening was not pulsating, and a granulating ulcer found corresponding to the hole in the skull. The dura was opened and just beneath the granulation a stream of pus gushed out from an abscess cavity beneath the cortical substance. The opening was enlarged with dressing forceps and about two ounces of pus evacuated. The cavity seemed by exploration with the finger to be about the size of a large egg. It was irrigated with sterilized water, loosely packed with iodoform gauze, let out through an opening in the flap corresponding to the deeper opening. The wound was thereafter saturated and antiseptic dressings applied.

November 23 he rested quietly during the night and seems much brighter: says he feels "first rate" and wishes to get up. Pulse, 120; temperature, 101. November 24, wound dressed and irrigated and iodoform again introduced. November 26, temperature, 99. Wound was thereafter irrigated and dressed every other day, a small strip of iodoform gauze introduced for drainage; the pus discharge diminished rapidly and he left the hospital convalescent on December 10. From a letter from his physician of January 16, 1894, I quote: "Mentally and physically the child seems to be perfectly well, has gained in weight and is as active as ever. The discharge of pus ceased shortly after his leaving the hospital and the wound is nearly healed."

The interest in this case is the entire absence of paralysis, although the abscess evidently was near the motor center and must have made considerable pressure on this point. The diagnosis was made on the symptoms of mental dullness and elevated temperature.

Case No. 3. Trephining for epilepsy. Recovered.

For the history of the following case I am indebted to Dr. W. C. Krauss, of Buffalo. W. T., of Attica, N. Y., age 24, height 5 feet 8 inches, weight 165 pounds, constitution strong and healthy. Nothing in his antecedents and early life is worthy of special consideration. When 12 years of age an accident befell him on a Fourth of July, which proved to be the cause of his later misfortune. Some boys, having procured the barrel of an old gun, were engaged in discharging it to help celebrate our national holiday. The gun flew into the air, and on descending struck the patient on the left frontal region of the head. He was carried unconscious to a physician's office, who removed several small bone particles of the skull and sewed up the wound. Suppuration set in, which continued for a few weeks, and the boy seemed to have recovered fully from the effects of the injury. About six years ago — six years after the accident — he began to notice that he felt unusually drowsy, dull and stupid on awakening in the morning. This condition lasted for some time, the cause undiscovered until he was discovered in an epileptic attack by his room mate. He consulted several physicians without obtaining any relief. In the fall of 1890, he consulted Dr. Krauss, who, without any success, prescribed bromides. He made a thorough examination and found a large deep depression over the left frontal bone, the posterior edge extending through the coronary suture. Up to this time he had been able to work hard on a farm, but would have the nocturnal attacks. On May 2, 1891, Dr. Krauss was called to Attica to see him, and found him in one of the attacks. He was sitting in a chair, his eyes wide open, glassy, staring, his head drawn to the left, speechless, but not exhibiting any signs of convulsions. These attacks were growing more frequent, had become diurnal as well as nocturnal, and some radical procedure was demanded. Two days later Dr. Krauss was again called to Attica and I was requested to accompany him and operate. On our arrival we found the patient in the status epilepticus, the attacks being no longer intermittent, but continuous without longer intervals than a couple of minutes. He had been in this condition for thirty hours, one attack of convulsions following the other without the patient regaining consciousness. The pulse was weak and rapid, face cyanotic. A large depression, covered with a tight, whitish, adherent scar was seen as described. A large curved incision, convex backwards, was made, the scalp loosened with difficulty from the bone and an irregular defect of bone found under the scar. The surrounding edges of the bone were much hypertrophied, strongly adherent to the dura and pressing it inwards. The dura was loosened all around from the hypertrophied bone, which thereafter was removed all around the defect, except anteriorly, with cutting forceps.

During the following day he had six attacks, but thereafter he improved rapidly and he soon returned to his work a well man. No attacks occurred for seventeen months, he got married and felt well, but continued the treatment with bromides. On October 7, 1892, he consulted Dr. Krauss again and stated that the attacks were returning and were becoming daily more frequent. Dr. Krauss advised him to enter the Sisters' Hospital in Buffalo in order that he could be under observation and treatment. The attacks, similar to the ones he had at first, grew daily more frequent and intense, and after three days he was in the same condition of status epilep-

ticus. An operation, similar to the first, but convex forwards, where the bone could not be reached during the first operation, was performed, hypertrophied bony edges, strongly adhered to dura mater, found and removed and the dura again widely loosened from the bone with Horsley's sp tula.

He recovered rapidly, having some attacks only during the following twenty-four hours, and was discharged from the hospital on November 6, 1892, apparently cured. He was again treated by Dr. Krauss with bromides, his food restricted and all work prohibited for six months. Thereafter he resumed his farm work. He has since had no more attacks or peculiar feelings, his physical and mental condition, Dr. Krauss states, are excellent and we hope for no further trouble. The depression is covered by his hair and gives him no concern whatever.

The interest in this case is the late appearance after the injury, the apparent recovery after the first operation, relapse and a still further remission and possible cure after a second operation. It is the belief of Dr. Krauss and Dr. Crego, who saw him the second time, that death probably would have occurred, if he had not been operated upon.

XXXVII. A New and Almost Bloodless Operation for Prolapse of the Rectum.

By EDWARD CLARK, M. D.,
BUFFALO.

Perhaps the large majority of ordinary cases of prolapse of the rectum can be cured by Van Buren's method of linear cauterization, or the clamp and cautery method. However, every surgeon, and especially one who is engaged exclusively in the practice of rectal surgery as I am, will sooner or later meet with cases in which linear cauterization will not effect a complete and radical cure, no matter how skillfully it may be performed, and in these cases there is much doubt in my mind as to the curative efficacy of the clamp and cautery operation and its freedom from danger.

That linear cauterization is not to be relied on in the class of cases above referred to is evidenced by the fact that Drs. Lange and Briddon of New York have both reported cases where other operative measures were necessary to effect a cure in grave cases, where linear cauterization had been tried and found wanting. Dr. J. M. Matthews, of Louisville, has also reported cases of the

same character. Drs. Lange and Briddon have both devised clever surgical procedures for the cure of aggravated cases of prolapse which have proven successful in their hands.

The operative procedure which I am about to describe is one that, so far as I know, is entirely original with me, and which I have performed on two cases of complete prolapse, both involving the peritoneum, during the present winter, with complete and perfect success. It is most applicable to the severe and aggravated forms of the malady involving the peritoneum, which cases, fortunately, are somewhat rare. It was evolved as the result of considerable thought and study on my part in an effort to avail myself of some operative procedure for the relief of these severe cases which would be free from some of the disadvantages possessed by the methods hitherto in use, such as shock, hemorrhage, difficulty of performance, etc.

The advantages which I claim for my mode of operation are: First, the ease with which it can be performed by a competent surgeon; second, its great freedom from hemorrhage; third, the opportunities it affords for an almost absolutely aseptic operation, always hard to obtain in operations on the rectum.

My method of procedure is, after the patient's bowels are thoroughly cleaned out by a brisk purge and repeated enemas of a hot boracic acid solution, to have an anæsthetic administered, and the sphincter ani muscles stretched. This being done, the prolapsed bowel presents itself in the shape of an immense ovoid tumor, varying from three to eight inches in length. This is thoroughly cleansed by irrigation with a 1 to 2,000 bichloride solution, after which I throw around the tumor, as near as possible to its base or point of attachment, a strong solid rubber ligature, not tight enough to strangulate the tissues, but just tight enough to close up the blood vessels, both arterial and venous. This being done, I make an incision around the orifice at the apex of the tumor, at the point where the external and internal layers of the prolapse come together. The incision must be carried through the entire thickness of the gut, so as to enter the cellular space between the layers of the prolapse. I now insert my finger into the incision, and separate the two layers; and now, instead of an ovoid tumor, we have two hollow cylinders of rectum, one within the other, the outer one having the mucous surface on the outer side, and the inner one the mucous surface on the inner side. The outer

layer is then turned outward all around, just as you would turn up a coat-sleeve; the inner layer is then surrounded by a strong silk ligature about one-half inch from its cut end. This closes up the rectum proper and effectually checks any bleeding which would be sure to occur when the temporary ligature around the base of the tumor is removed, which is now done.

I next incise the external layer on its posterior aspect in the median line from its cut end right down to a point about one-half inch from the verge of the anus; with the handle of my scalpel and my fingers I dissect off the external layer all around, but lastly in front, where we find the pouch of peritoneum; this is carefully pressed up out of the way of danger by an assistant, so that it may not be injured. The external layer is now cut away all around, the line of incision being parallel to and about one-half inch below or external to the anal margin. We have now the internal layer firmly held in the grip of the silk ligature, which checks all hemorrhage from this layer, and at the same time closes up the bowel completely so that there is no chance for fæcal contamination of the denuded and cut surfaces; what little hemorrhage there is from the cut external layer is readily controlled by hæmostatic forceps. It is from the internal layer that is continuous with the bowel above, the seat of operation, that we would get the severe hemorrhage, were it not for the fact that it is already tightly encircled by the silk ligature above alluded to; in fact this ligature and the elastic one first spoken of are the means of making the operation almost a bloodless one. I now make a very small horizontal slit in the internal layer anteriorly, just on a level with the line where the external layer was cut away. I then begin to suture the two layers together at this point by passing my needle, first through the external layer from without, inward, then through the internal layer, bringing it out of the slit, or button-hole, above alluded to; this fixes the two layers together at this point and closes in and holds up the peritoneal pouch. I now introduce my scissors into the little slit above spoken of and extend it about one-quarter of an inch laterally and immediately suture the cut portion to the external layer, and then follow right around the internal layer, cutting and suturing it to the external layer as I go, to avoid hemorrhage, and when I have gone all the way around the operation is complete.

A description of the operation without drawings to illustrate its various steps makes it seem complicated and difficult to understand, but it is simple and easy of execution by any competent surgeon, and any one who performs it as I do, will no doubt be surprised at the ease with which it can be performed, its great freedom from hemorrhage, and the facilities it affords for doing aseptic work.

XXXVIII. The Treatment of Hernia.

By ALEXANDER DALLAS, M. D.,
NEW YORK.

At the last meeting of this Society I had the honor to present some new methods in the treatment of hernia (a full account of which will be found in the Society's Proceedings), and the interest then evinced has induced me to make a few additional remarks on this important subject. During the past year much has been written about it, but little real progress has been made. Quite recently two special works on hernia have been published in this country, but they contain nothing original, much that is harmful, and their only tendency will be to still further complicate a subject already sufficiently misunderstood.

Of the two divisions under which the treatment of hernia is generally spoken, viz., the "palliative" or mechanical, and the "radical" or surgical, the "palliative" is, for many reasons, the more important, and yet, so far as the profession is concerned, it practically does not exist. To some of you this statement may seem extreme, but a somewhat extensive experience in this special branch of practice compels me to reiterate it. Few practitioners take any personal part in the mechanical treatment of hernia; fewer still take the trouble to master its principles, while surgeons affect to regard it as unworthy of their attention. Other branches of medicine have been advancing steadily, especially of late years, but the palliative treatment of hernia has remained virtually stationary for centuries. Celsus, who practised in the first century, tells us that, in his time, a girdle of some firm material was used, with a pad to retain the rupture. In 1306 the girdle was first made of iron, and, in 1628, steel commenced to be used, but with

the exception of a difference in the materials employed, the principle has remained the same.

Our teachers and text-books keep on repeating one another without change, recommending instruments which they have probably never tried, and promising results which cannot be attained by the methods now in use. Disappointment inevitably follows, but no real effort has been made toward improvement, and the palliative treatment of hernia has expired from "dry rot."

In regard to the radical or surgical treatment of hernia, the tendency is all the other way. Here, as elsewhere, there is too great a readiness to appeal to the knife, and the multiplicity of so-called "radical cures" is absolutely confusing, while the results are not at all commensurate with the risks incurred. The craze for the so-called "open method" is at present so excessive that there is often but little left of the original structures involved, and the permanent injury inflicted on the patient is entirely overlooked. The *fin de siecle* surgeon no longer "repairs;" he "reconstructs."

As the result of this attitude of the profession toward the ruptured, the treatment of hernia has always been a fruitful field for impostors; and charlatanry was never more rampant than now. The Heaton injection method has been resurrected and, though its inefficiency was proven many years ago, it is now flaunted in almost every town throughout the country as an unfailing cure for every form and variety of hernia. The most humiliating feature in this revival of a dead issue is the fact that these quacks are aided and abetted in their nefarious methods by reputable members of the profession who not only send them patients but certify as to the successful results of their treatment. These gentlemen fail to see the unenviable position in which they place themselves and the great injustice and injury they inflict upon their patients and their profession.

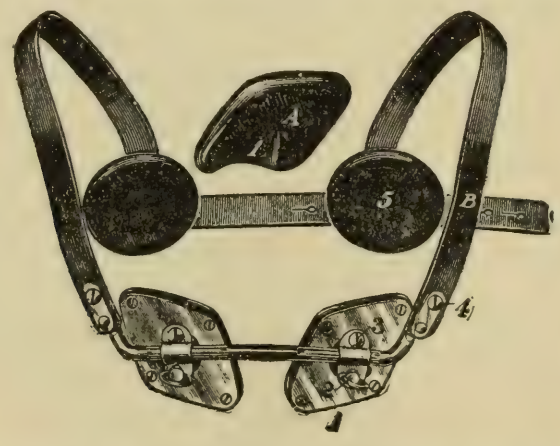
One valuable lesson we can all learn from these charlatans is the absolute necessity for constant personal supervision in the management of the palliative treatment of rupture cases. We must not only give them our personal attention, but we must be persistent in our efforts if we wish to succeed. Just as soon as we begin to do so, we will realize the imperfections of the trusses now in use and appreciate the causes of our failing to obtain

cures. Indeed, the unsatisfactory results obtainable by the present faulty instruments are largely responsible for the indifference and neglect bestowed upon these cases. Notwithstanding this, the extraordinary claim was made here last year that good trusses were so plentiful that, in any small town, instruments could be found suitable for any case. Such a statement is controverted by experience and is not borne out by the speaker's clinical results. Misleading statements of this kind only tend to paralyze all progress and check all efforts after improvement.

To command success, the first absolute requisite is to employ a truss that will *permanently close* the internal ring. With the ordinary circular spring or girdle truss, this is a physical impossibility. The history of the centuries proves it. You may adjust your instrument over the internal ring, but whether you employ the ordinary spring or the "crossbody" truss, or the "frame" truss, or the so-called "silver" truss, it soon sinks down until it rests upon the pubic bone, leaving the internal ring unprotected and exercising injurious pressure upon the spermatic cord. The pressure in all varieties of the "circular" truss is from below upwards, thus increasing the pouting of the internal ring and inviting to the presence of a bubonocele which prevents the possibility of a cure. Many practitioners recommend the use of the so-called "elastic" truss, but in doing so they display ignorance of the first principles of the successful management of these cases. Not one of you would advise the employment, for months or years, of a tightly applied Esmark bandage over any other part of the body; but the statements of some of our authorities on hernia would lead one to suppose that the tissues involved in a hernial protrusion are not subject to the same laws as govern other portions of the body. They do not believe in atrophy of the tissues from over-pressure; they smile at the idea of possible injury to the delicate vessels comprising the spermatic cord from the constant application of from 3 to 4 pounds of pressure directly over the pubic bone. Nevertheless, gentlemen, the atrophy is there and the injury is there; and the difficulty in the management of these cases is not so much from the rupture itself, as from the injurious effects of previous improper treatment. Some authorities seem to think that a truss to effect a cure must produce some vital change in the parts to which it is applied. Such an idea is erroneous. The action of a truss is *purely mechanical*. Its applica-

tion is intended to keep the internal ring *permanently* closed, and by preventing the intrusion of any foreign body, the ring contracts in obedience to the natural law that *a cavity always adapts itself to its contents.* By doing so, all ruptures under puberty can be rapidly cured, for in these cases there is a strong natural tendency to closure of the ring. So, also, most recent cases in adults can be treated with like success, but the treatment must begin early and be carefully persisted in. This statement will doubtless be questioned, but clinical facts outweigh all theories and preconceived ideas based on the results of faulty instruments.

A frequent cause of failure in the management of these cases is the want of proper medical supervision, but no amount of effort will avail unless you employ a truss that thoroughly controls the internal ring. By careful and persistent attention on the part of



the physician, aided by intelligent assistance on the part of the patient and the employment of a proper truss, results can be attained that will be both surprising and gratifying. At the same time, efforts should be made to develop the weakened tissues and care should be taken to remove all causes that would tend to prevent nature in her efforts to effect a cure.

My own early experience in the mechanical treatment of hernia, was, like that of all others, most unsatisfactory. One truss after another was tried and discarded until, in despair, I had one made to meet the indications as I understood them. After many years' experimentation, I submitted the instrument to your inspection. I did not claim that it was perfect, as one speaker disingenuously stated, but I did claim that it gave better results than any other with which I was acquainted. Another year's experience has more than justified the claims then made; and its method of manufac-

ture, as you see, has been greatly improved. It is the only truss which can be *permanently* retained over the internal ring, resting immovably, as it does, upon the crest of the ilium. Its pressure, unlike all other trusses, is applied from above downwards. It interferes less than any other truss with the movements of the body, and is less affected by them. On account of the groove in the face of the pad, it is the only truss which does not exercise injurious pressure upon the spermatic cord. By its use more cases can be cured than by all other trusses combined. When from any cause the cure is unnecessarily delayed, or reasons of expediency demand a speedy result, the freshening of the canal in the manner advocated by me will effect a safe, speedy and permanent cure.

XXXIX. The Action of the Hydrochlorate of Scopolamine on the Eye.

By THOMAS R. POOLEY, M. D.,
NEW YORK.

It is the purpose of this paper to briefly summarize some of the observations already published in relation to this drug, and then to give the writer's experience with the same for the past six months.

In the *Klinische Monatsblätter für Augenheilkunde für* 1893, Rahlemann has a paper in which he says that Schmidt, of Marburg, first described this drug as an atropoid alkaloid, derived from the roots of the *scopolio atropoides*, and which, like atropine, hyoscine, etc., belongs to the pharmacological group of the tropeines, and as such the instillation of a watery solution in the eye causes dilatation of the pupil. According to Landenburg, scopolamine as well as hyoscine are contained in hyoscyamus without being identical with the latter. It is rather isomeric with cocaine, but yields quite different integral products.

The preparation was given to Rahlemann by Professor Kobert with the information that after experiments on the lower animals by the internal administration of scopolamine, it showed an opposite effect to atropine, and that its influence on the cortex of the brain was not stimulating like that of atropine, but on the contrary

retarded its action. (Later on I shall have some comments to make on the erroneous character of these observations.) These last-named qualities led to the expectation *a priori* that the local special effects of the new remedy would be different, especially on the conjunctival blood vessels. Rahlemann, after using scopolamine, both on normal and diseased eyes, came to the conclusion that as a mydriatic and antiphlogistic it surpasses all other tropeines, including atropine. In strength of mydriatic effect it resembles hyoscine closely. The remedy does not produce the disagreeable after effects and double vision which, according to his observations, occur in the use of hyoscine; but it possesses all the advantages which belong to hyoscine in comparison with atropine. He used it during a period of six months in all cases in which atropine is applicable, and also by way of comparison with atropine, and he has found that scopolamine is, in many cases at least, equal to atropine, while in others it is entirely its superior; but the circumstances, says he, which will insure scopolamine an enduring place among ophthalmic remedies is that it can be used for a longer time in a solution equivalent to a 1 per cent solution of atropine without producing the troublesome associated symptoms which so often make the continued use of atropine impossible. He further says — but this I do not believe — it is well known that atropine when used as an instillation for any length of time disturbs the appetite. He has never seen this or similar effects from the use of scopolamine. It is only after very large doses of scopolamine that a feeling of dryness of the throat is pro duced, a symptom which occurs after a very moderate dose of atropine. The state of nervous restlessness, with or without reddening of the face, and quick pulse, which is so often found in patients treated with atropine, never occurred after the use of scopolamine. In cases of incipient atropine poisoning, or in an idiosyncrasy toward atropine, scopolamine renders therefore the best service since it more than supplants atropine in its local effect, and completely destroys its general effect.

In cases of iritis, episcleritis with infiltration of the sclerotic, etc., when atropine could not be any longer endured, when the powers of the body were depressed on account of want of appetite, and the general condition of the body was as unfavorable as possible, scopolamine not only improved the eye disease, but also the general health. The remedy surpasses atropine in its influ-

ence on peri-corneal injection, and possesses special advantage in suppurative keratitis, serpent ulcer and irido-cyclitis. As is known, under these circumstances, especially in suppurative keratitis, serpent ulcer and irido-cyclitis, atropine is often inadvisable. But Rahlemann has found in five cases that scopolamine caused a diminution in the size of an hypopion. Scopolamine seems to act far more favorably on suppurating tissues than atropine, probably through its effect on the blood vessels. Scopolamine does not seem to increase intra-ocular pressure, even if there is a pathological increase of tension. If there is a pathological increase of tension the remedy can be borne; therefore it is an indispensable drug in inflammatory conditions, especially in iritis, when they occur in glaucomatous eyes. He has used scopolamine with advantage in several cases of chronic inflammation with secondary glaucoma. In one case of absolute glaucoma with great irritation, strong ciliary injection and hyphæmia, the pain ceased, the eye became quiet and the blood disappeared from the anterior chamber under the influence of this drug. He has not tried it in acute glaucoma. Hydrochlorate of scopolamine acts five times as powerfully as atropine. It paralyzes, like the latter, and in the same degree, the sphincter of the iris and the accommodation. The duration of the effect is one-fifth per cent scopolamine compared with one per cent atropine. (Whether homatropine or sulphate it is not stated.) The duration of the effect is about the same — perhaps somewhat shorter with scopolamine than with atropine. It is to be used in solutions of one to two *pro mille* (one-tenth to one-fifth per cent), which solutions correspond in dose to one-half and one per cent solutions of atropine. Six to seven drops may be used daily in an adult, or it may be used every fifteen minutes during one, or one and a half hours. With children correspondingly weaker solutions are to be used. It operates best when used in divided doses. (Report on Therapeutic Progress, *Therapeutic Gazette;* extract from the *American Journal of Ophthalmology*, July 18, 1893.)

L. Ballarminow (*Russian Wratch*, No. 17, 1893) — abstract in the *Revue générale de l'ophthalmologie*, July, 1893 — also has some observations on the action of scopolamine, from which he draws the following conclusions, which are essentially the same as those entertained by Rhalemann : Scopolamine is indicated for the same cases as atropine, especially to determine the anomalies of refrac-

tion and accommodation, owing to its marked effect on accommodation, which permits of a speedy and accurate determination; in addition, it considerably shortens the period of duration of paralysis of accommodation and mydriasis. Scopolamine is also preferable to atropine in cases of short attacks of inflammation of the cornea. In general, scopolamine has all the good effect of atropine without its bad qualities. The author, therefore, thinks scopolamine will soon replace atropine in the practice of ophthalmology. Merck (the market report for December, 1893) describes scopolamine hydrobromate as a salt of the alkaloid from *scopolia atropoides*, similar in physiological action and use to atropine, but not causing dryness of the throat, nervous restlessness or congestion of the face as in the case of atropine; neither does it affect intra-ocular pressure. Its application as a mydriatic is in $\frac{1}{0}$ to $\frac{1}{5}$ per cent solution, which correspond to $\frac{1}{2}$ to 1 per cent atropine solutions.

It was shortly after reading these *coleur de rose* reports of the virtues of the new drug (August, 1893) that I began its occasional use — at first to determine whether it had any local anæsthetic properties, which I soon found it did not possess. I then began its use in all such cases in which we usually employ atropine. The preparation I first used, a $\frac{1}{5}$ per cent, was made by Merck, and obtained from Fraser's. In all cases where instillations were used by myself or my assistant, Dr. W. J. Killen, this preparation was employed, but when it was prescribed the patients got it at Weiss' drug store, Thirty-fourth street and Seventh avenue, which was also stated to have been Merck's preparation.

As a mydriatic to determine the anomalies of refraction, my house surgeon has used it in a number of cases, which I will not weary the Society by reporting in detail, but I will briefly give the results. In some instances the instillations were made while the patient was in the hospital — four times within an hour, or at intervals of fifteen minutes — and then the examination was proceeded with. In every instance it was found that the effect had been to produce complete paralysis of accommodation, and that mydriasis was produced in from ten to fifteen minutes, but that it took about three to four instillations to complete the paralysis of accommodation. The completeness of the paralysis of accommodation was shown both by the inability to see in the near and by the bringing out in the second examination the total amount of

ametropia. The duration of the mydriasis and the paralysis of accommodation was from twenty-four to forty-eight hours — about the same as homatropine, but much shorter than that of sulphate of atropine. One remarkable result observed by Dr. Killen in several cases was a notable diminution in the visual acuteness after the full effect of the drug on accommodation, *i. e.*, the correction of the ametropia did not bring the vision to the normal standard.

In three cases, all of them occurring in patients who had bought the drug themselves and used it at home, very marked toxic effects occurred. One of them is so remarkable that I shall take the liberty to report it in full. It happened in a girl of about 13 years, in whom there was a history of convalescence from nephritis following an attack of diphtheria and cardiac palpitation. These facts, however, did not come to light until after the drug had been used. On January 29, 1894, she came to the clinic, having used the solution of scopolamine ($\frac{1}{5}$ per cent) six times in each eye, when the most alarming symptoms set in — the child began to stagger, talk in a thick, drunken and foolish way, and at times seemed out of her head, and was very dizzy. At the clinic, the pupils were found to be widely dilated, there was constant working of the lips and muscles of the face; the pulse was very rapid — 120 to 130 per minute — and the heart's action very irregular and rapid. She had a staggering gait which did not allow her to walk without assistance. She complained of needles under her feet on standing; she said there was dryness of the throat, and there was no erythema of the face. She was kept in the hospital for three hours before she was able to go home. She was given half an ounce of brandy two or three times. Two days later the mother brought her back to have the examinations of the eyes completed. She said that all that night the girl raved and was out of her head, and it was only two days after the use of the drug that she seemed to have fully recovered. Two other cases came under notice only a day or two later, both occurring in healthy adult females in whom the symptoms were the same, but less in degree. In addition, both of these complained of the dryness of the fauces. Here, too, the toxic symptoms did not pass off before twenty-four hours in one case, and in the other, forty-eight hours. In all of these cases, as the drug was given to be used at home, and a larger quantity prescribed than was needed,

more than one drop may have been used, and it may even have run over the face into the mouth. At all events, it seems significant that these symptoms occurred only when the drug was used by the patients themselves. The number of instillations, too, were more than were used at the clinic.

The other cases in which I have used this drug have been mostly in ulcers of the cornea of different types. In one case of serpent ulcer, just the kind in which it is said to be so efficacious, it was noted that scopolamine was used for two days, but the eye was so irritated by it that atropine had to be substituted. In all other affections of the cornea in which it was used there was a very beneficial effect noted, especially so in one case of suppurative keratitis of traumatic origin in which the healing occurred in a few days. In quite a number of cases of phlyctenular keratitis too it acted very promptly. In one case of kerato-iritis the mydriatic effect of the drug was very quick, marked and satisfactory. I have not yet tried it in cases of iritis of a severe type, or in any case in which there was a tendency to increase in intra-ocular tension, and consequently cannot confirm or deny the very important observation made by the authors quoted, that it does not increase intra-ocular tension. If this shall be confirmed, however, by future experience and observation, we shall have a drug of inestimable value in ocular therapeutics. I am anxious too to try it in cases in which atropine produces the severe form of conjunctivitis which we call "atropine poisoning," for, from the positive statements made, we may hope that it will not only supersede atropine in these cases, but will also have a favorable effect on its cure when it has already occurred.

My conclusions, then, from my brief trial of scopolamine are: That it is of value as a mydriatic and cycloplegic in the examination of anomalies of refraction: that its action is more complete than homatropine, and of about the same duration, and better than sulphate of atropine, because its effects pass off sooner; that it is open to the objection, if my observation should be confirmed by wider experience, that it produces toxic effects oftener than homatropine in spite of statements to the contrary; that the temporary amblyopia sometimes induced does not seem to be of much moment; that in cases of short attacks of inflammation of the cornea, especially in some of the suppurative type, it is of special value.

The tendency of the profession to vaunt the therapeutic value of a new drug is well known, and many instances in which those who were loudest in their praises of it soon become equally pronounced in their condemnation, must occur to all of us. That scopolamine, as we have quoted from one of the authors, will soon replace atropine in the practice of opthalmology is not so well assured, but that it may prove a very valuable addition to the list of mydriatics which we now have seems to be altogether likely, and we await with interest further details of experience and observation from our colleagues.

XL. The Barber-Shop as a Source of Contagion.

By GEORGE THOMAS JACKSON, M. D.,
NEW YORK.

"Next!" How familiar the sound! How it brings up visions of past and present tonsorial artists who have tweaked our noses, cut our faces, and run the sharp point of their shears into the most tender part of our necks. These same artists may have been black, with woolly hair; or brunette, with dark eyes and curly black hair; or large and blonde, with flaxen locks; or short and thick, with high cheek-bones and shocky hair. No matter whether he was negro, or Italian, or German, or Irish, or whatever his nationality, there was one common bond that bound them all, and that was a want of observation of the rules of personal hygiene.

As there are different nationalities among the barbers, so there are different grades of barber-shops, from the very cheap one in the cellar off the Bowery, where one towel is used for all customers, through that more pretentious one that displays a sign telling the passer-by that every customer is entitled to a clean towel, and that a shave costs ten cents — with bay rum, fifteen cents — up to such showy ones as that in Chicago, that boasts of being paved with silver dollars; here, again, there is one common bond that binds them all, and that is, a want of observation of the rules of hygiene.

How often have you seen a barber with absolutely clean fingernails? How often have you seen one that was particular in wash-

ing his hands after attending to one customer before going to the next? How often, in even the best of shops, have you found perfectly dry towels? How often has a feeling of disgust come upon you when you have had your hair brushed by a barber, and thought of what the conditions of the heads of the previous customers may have been upon whom the same brush may have been used since last it was thoroughly washed and disinfected? If you have allowed the barber to use his hair-clipping machine upon you, have you ever thought how difficult it would be to disinfect that machine, and how very unlikely it was that such an idea as disinfecting it would enter the barber's head? What better means of infection could you invent than first to soften the epidermis with soap and water, then to scrape off some of the protecting cells with a razor held in hands whose nails harbor many a micro-organism, then to pat the tender, perhaps denuded, surface with a moist towel, and last of all, powder it with a powder-puff that has been in contact with unnumbered scores of faces? And yet we, who are educated men, many of whom would perhaps hesitate to use the brush, comb or other toilet utensil of a friend, submit to these things without a murmur, and even without a thought.

Most of you perhaps think of only one disease as contagious through the medium of the barber, that being ringworm of the beard and scalp. But, alas! that is but one of many. In the same list belong impetigo contagiosa, syphilis, sycosis, various forms of dermatitis, erysipelas, alopecia, alopecia areata, pediculosis, and perhaps acne frontalis, tuberculosis, and some others. Cases of all these dermatoses have been reported by competent men as having their origin in all probability in the barber's shop. And as micro-organisms have been demonstrated in connection with all of them, why should they not be so communicated?

The agents of contagion are dirty finger-nails, the head-rest of the chair, damp towels, the shaving-brush, the razor, the powder-puff, comb, brush, sponges, and the hair-clipper. The most active carriers of contagion are, probably, the finger-nails, the towels, powder-puff, brush and clipper. As the razor and the shaving-brush are dipped in boiling water from time to time, perhaps their dangers are somewhat lessened. We all know how hard it is to render the hands aseptic. We all remember Mr. Tait's historic remark in regard to the finger-nails and aseptic abdominal sur-

gery. We all have noticed that the barber's finger-nails are often far from clean. As to towels, it is said, and doubtless with truth, that they are seldom boiled and washed after being used, but most usually simply put through the mangle, and then returned damp to the warm barber-shop to form most excellent culture media. And as to the clipper, we have already sufficiently remarked upon it as an instrument hard to disinfect.

Perhaps you are sceptical about the dangers that lurk in the barbers' shops, because you have not seen instances of contagion arising from them. I do not wish to pose as an alarmist, but I assure you that I am fully convinced of them, and if you are conversant with German and French literature you must have noticed how our foreign confreres are fully awake to them. So much is this the case that in certain parts of Germany rigorous rules have been promulgated by the government regulating the hygiene of the barber-shops. In France epidemics of alopecia areata in regiments have been traced to the use of the infernal machine called the hair-clipper. Surely if there is any better instrument for spreading contagious disease of the scalp than this machine I do not know it.

This age takes just pride in its preventive medicine. Cholera, small-pox, typhus fever, and other contagious diseases have been greatly lessened and controlled by active preventive measures. The Board of Health in the city of New York, thanks to Dr. H. M. Biggs, has taken a long stride forward on this path in its recent resolutions as to the segregation of tuberculous patients. It is true that the diseases that may be spread by barber-shops may seem trivial when compared with the diseases just mentioned. But it is no small damage that is done to the child when he contracts ringworm of the scalp; or to the man when he loses all the hair from the top of his head, or gets a chancre on his cheek.

It is useless to make laws unless public opinion is behind them. It seems to me that it is our duty as physicians and sanitarians to at once begin to educate public opinion in relation to the dangers that the barber-shops foster. When the people are aroused to a sense of their dangers it will be easy to formulate laws that can be enforced to mitigate and remove the evils to which I have had the honor to call your attention. There is one thing that can and ought at once to be done, and that is to make it an offense pun-

ishable by fine to use the hair-clipper. Quite frequently do I see a patient with ringworm of the scalp in full bloom, whose hair has been clipped with a hair-clipper in the hands of a barber. Just think what mischief that barber may do in his ignorance!

I shall not attempt even to outline a system of rules for the hygiene of the barber-shops. I only hope that I have been able to sow the seed here that before long will bear fruit in correcting evils that have been allowed to exist too long, because public attention has not been drawn to them.

XLI. On the Physical Causes of Sexual Debility in the Male, as Distinguished from the Psychial Causes.

By F. R. STURGIS, M. D.,
NEW YORK.

Until within comparatively recent years it was the custom among surgeons, when consulted by patients suffering from sexual debility, to refer the causes entirely to a disturbed condition of the mind, overlooking altogether the possibility that there might be some physical cause to account for the symptoms — symptoms which undoubtedly, in many cases, are conveyed through the nervous system, but which have not their seat alone in either nervous debility or in nervous depression.

Before calling your attention to the physical causes which I think underlie a large majority, if not all cases of sexual debility, I shall ask you first to consider with me the symptoms for which patients consult a surgeon, under such conditions.

There are two points which enter into all the symptoms that I have heard made by patients who suffer from this cause. One is the imperfection of erections — sometimes their entire absence — and secondly, the prematureness of the emissions, followed immediately by a subsidence of the erection, supposing this function to have been perfectly normal at the start. Associated with this latter condition, there may also be an entire lack of emission, or else, if the emission takes place, the amount ejaculated is very small, and if examined under the microscope, is oftentimes found devoid or but imperfectly endowed with spermatozoa, constituting the condition of affairs which is known as azoospermism.

The former may be considered as the earlier stage which tends toward the development of the second; the first point noticed by the patient being imperfect erection, associated with premature emissions and followed by an absence of erection. Since the introduction of the endoscope into urethral surgery, it has been possible to examine the urethra to see if there were any pathological conditions in this canal which were either associated with or perhaps caused this condition of affairs; but even before the introduction of this useful instrument, the older surgeons recognized the fact that these symptoms occur most frequently in patients who had been persistent masturbators, and in these, upon examination with sounds or bougies, a stricture, more or less definite, was found in certain portions of the urethral canal, and some went even beyond this, ascribing a hyperæsthetic condition of the canal as possibly one of the causes, or at any rate, one of the concomitants of this condition of affairs. This is exemplified by the use which the older surgeons made of the instrument known as Lallermand's "portecaustique," which they used to cauterize the deeper portion of the urethra. But although the principle was perfectly correct, the application of it was defective inasmuch as most of the work was done entirely in the dark; portions of the canal were cauterized which were not the seat of the disease, and the instrument being at best a rough and cruel one, oftentimes produced laceration of the mucous membrane with profuse hemorrhage. The danger resulting from its use finally led to its abandonment. But with the endoscope we are now able to see the whole length of the canal and to note those portions of the urethra which are normal and those which are not. Since the days when Desormeaux and Cruse introduced their instrument for the examination of the urethra to the profession, the endoscope has been materially modified in so much as its length and its capacity for illumination were concerned. The older instruments were long and it was impossible to thoroughly illuminate the deeper portion of the urethra with them. The present instrument is short and by telescoping the anterior and pendulous portion of the penis may be passed as far as the neck of the bladder, and its shortness allows of better and more perfect illumination. This is derived in a two-fold way; by gas light, kerosene or the electric lamp, any one of which methods gives a perfect and complete illumination of the canal, and the applica-

tions may be made directly to these portions of the urethra which are seen to be the seat of disease.

The causes which I have found playing a most frequent part in this condition of affairs, naming them in the order of their frequency, are:

1. Urethral hyperæsthesia; 2. Prostatic hyperæsthesia; 3. Stricture; 4. Varicocele; 5. Neuralgia of the testis; 6. Tubercular affections of the urethra; 7. Syphilis; 8. Gonorrhœa.

Hyperæsthesia of the urethra and stricture may be included together as one single cause, for in many instances the one is more or less associated with the other, and to this point I shall call your attention more fully further on, when I come to discuss the question of stricture separately. Upon examining patients suffering with this form of disease, I have been frequently impressed with the fact that there were two points in the canal which were most likely to be affected, to-wit, one from two and a half to three inches down, the other at five and a half to six, and these two points were nearly always the seat of congestion more or less pronounced, with or without patches of granular material, and when the examination was made with a bulbous bougie, which is the instrument I use at the commencement of the examination, I have always found an obstruction to the passage of the instrument — an obstruction, however, which nearly always gives way after a few moments' delay. Should the obstruction, however, be obstinate, I then change from the bulbous bougie to the use of the steel sound, of a size which will correspond, nearly as possible, to the size of the meatus, and in nearly all these instances I have found that where the bulbous bougie was arrested the sound would go through, showing that there was a spasmodic condition which produces a contraction, rather than an organized material blocking up the way. In examining with the endoscope I have found that this condition was associated with a puffiness of the mucous membrane of the urethra, which would admit the passage of the endoscope, and beyond this puffiness the congested and inflamed portion of the mucous membrane was seated. It is very seldom indeed that there is any discharge from the urethra, and, if present, it is nearly always thin, mucous and sticky. The same conditions obtain deeper down in the prostatic portion; the congestion and inflammation are more pronounced there than they are in the portions anterior to this part of the

canal; and I have furthermore found that this portion of the canal does not yield to treatment so readily as when the congestion is situated about the penoscrotal angle of the bulbous urethra.

Many eminent surgeons have considered that urethral stricture is induced by the habit of masturbation. If by stricture we understand any and every impediment which occurs to the passage of a sound, then, perhaps, their statement is correct, but if we consider stricture merely as those obstructions in the canal due to an infiltration beneath the mucous membrane, blocking up the lumen of the canal and preventing the passage of sounds, then I think some modification must be made of the statement that masturbation produces stricture; and particularly so if we consider for one moment the disproportion that exists between the number of males who at one time or other of their life have masturbated and the number of strictures which occur, I think we will recognize that it is too sweeping an assertion to make, that the one is caused by the other. If, however, we admit that there may be spasmodic contractions in the canal induced by some point of irritation in the urethra, then we shall modify this statement by saying that masturbation may produce a hyperæsthetic condition of the canal which leads to temporary and spasmodic contractions, but not to true stricture, and I have in a pretty fairly large experience with these cases come myself to that conclusion, for after the local treatment has been pursued, the puffiness and temporary obstruction in the canal disappear, the hyperæsthesia and inflammation subside and the canal returns to a more or less normal condition, and with it the symptoms for which the surgeon was consulted gradually improve and entirely disappear. I have noticed the same condition in men who have indulged to excess in the sexual act and who had not, so far as I could trust their word, masturbated for many years — a sufficiently long time to prevent me from considering that the masturbation had any thing to do with their sexual debility, and yet in these instances the physical conditions were precisely the same as in those who had masturbated. I have, moreover, been struck with the fact that in those instances where a true stricture was present, as shown by the fibrous and dead white look when seen through the endoscope, that there was very much less sexual disturbance than in those cases where the contraction was due to a puffiness of the mucous membrane. Perhaps in those cases where the congestive condition only was

present, if left alone they might have degenerated into a true stricture, but I think this is merely a surmise, and I do not know that I have any thing to offer as proof one way or another.

Another cause which I think oftentimes operates in these cases of sexual debility is that in addition to this prostatic irritation, etc., an enlargement of the middle lobe of the prostate occurs, which by pressure, either upon the urethra or upon the vasa deferentia, produces an abnormal excitement upon the slightest occasion, as for example, when sitting upon a hard chair, upon crossing the legs, or upon straining during defecation, all of these acts being followed by an acute burning sensation in the prostatic portion of the urethra, sometimes with the sensation as though an ejaculation was about to occur, and in some few instances really followed by an involuntary seminal emission. In these cases it is that we find not only premature emissions, but sometimes a total absence of erectile power, so complete as to make the surgeon believe that the patient is really impotent were it not for the fact that at intervals the patient will have an erection on waking up which, however, rapidly subsides as soon as he is awake, and which is seldom followed, at least not for a considerable interval, by any further erection.

Varicocele, I am inclined to believe, is frequently the cause of sexual debility, oftener than is at present believed, and in such cases as I have had under observation I have noticed that as the varicocele increases the sexual power seems to have become less and less until when the final stage is reached, and the testis is atrophied, and nothing is felt in the scrotum but a bunch of veins, the patient is to all intents and purposes impotent, and, under these conditions, probably permanently so. I have furthermore noticed in these cases that where the varicocele is seen sufficiently early to warrant an operation for its relief, it was followed by an improvement in the sexual functions and power.

Neuralgia of the testis is another cause which sometimes plays a part, but only, I think, because of the excessive pain, which is one of the peculiar symptoms of this disease, the pain being so intense as to preclude a thought of any thing else and in that way producing imperfect erections, for in those instances where temporary or permanent relief is afforded the sexual functions return, and are, to all intents and purposes, as good as they were before.

Tuberculosis of the genital tract does not produce any sexual disturbance unless the prostatic portion of the urethra or the testicles are invaded, and in these cases it seems to act less upon the function of erection than it does upon the premature emission, and subsequently by the lack of emissions. It is in these instances that we often find the condition of azoospermism, and associated with this, under the microscope, the bacilli of tuberculosis are not infrequently found; this, however, is not common. Syphilis and gonorrhœa produce disturbance, probably by some organic change occurring in the organs of generation, but in cases of tuberculosis the disturbance is produced probably by the breaking down of tissue either in the glandular portions of the prostate or in the body of the testis, producing either a plugging up of the epididymes or of the vasa defferentia, and so preventing the ejaculation of that portion of the spermatic fluid which contains the spermatozoa.

Syphilis in the earlier stages does not seem to have much influence upon the sexual function, but as the disease progresses and the seminal vesicles and the testicles are attacked with gummatous infiltration or gummata appear elsewhere in the uro-genital tract, we then find that the sexual powers become less, and in some rare instances may be almost entirely in abeyance, returning again, however, in the majority of cases after vigorous anti-syphilitic treatment. In these instances not only is sexual debility present, but there is an absence of the spermatozoa in the seminal fluid, so that the patient suffers in a two-fold direction, being both impotent and sterile. The same holds true in gonorrhœa, not during its earlier stages, for then the inflammation is such that erections are unpleasantly frequent and associated with great pain, but it is in the latter stages, and especially after the disease has lasted for some time, inducing stricture, that the sexual functions become affected, and if a gonorrhœal epididymitis has ensued, which must, however, be double, then azoospermism is the result, and of all the varieties of azoospermism this is the one which promises the least results from any method of cure, and the longer the blocking up of the epididymes has occurred, the less chances of fruitful semen. In these cases, apart from the irritation produced by the stricture, there is no debility, the patients are often as vigorous as ever. They have what seems to be a normal ejaculation, save and except that the semen is devoid of its fructify-

ing principle; in other words, these patients become sterile, but are not impotent.

One other cause may sometimes induce sexual debility, and that is an affection of the rectum, whether it be hemorrhoids, which is not an uncommon cause of temporary debility, or long and deep fissures of the anus, which by irritation will produce reflex irritation of the urethra, and so result in premature emissions, and in some rare cases will induce a weakening and lessening of the powers of erection.

In enumerating these purely physical causes which I believe to be most frequent as pathological factors in this disease, I do not by any means intend to decry the mental or nervous effect which is produced upon patients. It is often most pronounced, and in many instances seems to be the most prominent feature in the disease, but I believe that the error which has been made by surgeons in laying too much stress on the nervous part and too little on the physical, has worked to the detriment of both patient and surgeon, and has driven the former into the hands of the charlatan when the surgeon could have given better and more permanent relief, and I have trespassed on the time of the society in order to call the attention to the physical causes which I have found in the cases that I have had the opportunity of examining and treating for sexual debility, the majority of which I believe to be perfectly curable at the hands of the surgeon. The short time at my disposal has not allowed me to make more than a hurried sketch, calling your attention to the salient points in as few words as possible, and now a word in regard to treatment.

For the first three, to-wit, æsthesia, stricture and varicocele, the treatment must depend largely upon local methods, and not upon internal medication. Applications made through the endoscope, I believe, are far the best, and those applications range from nitrate of silver down through the various astringents to those which are purely sedative, such as cocaine and the like. I believe that the most serviceable treatment in the majority of instances is by the solution of nitrate of silver, from ten to thirty grains to the ounce, and even stronger. Sometimes I have used fifty grains to the ounce. The pain when this application is made to the deeper part of the canal, provided the solution is not allowed to run out toward the meatus, is very slight indeed, sometimes none at all, and I believe that the local application through the endoscope is

preferable either to the method of applying nitrate of silver by the portecaustique or the syringes of Ultzman, Keyes and others, because the application can be made directly to the part, the superfluous moisture can be soaked up by the cotton tampons at the end of the applicator, and no obstruction occurs. I do not believe, from my experience, that solutions of nitrate of silver, even when strong, produce stricture, certainly not when made through the endoscope. Nitrate of silver has received a bad name, and I think, in some instances, undeservedly, for when properly used I am satisfied that it is a valuable adjunct in the treatment of uro-genital diseases. In addition to this, the various solutions of zinc, the permanganate among others, tannin, either of an aqueous solution, or better, with glycerine, are frequently valuable adjuncts, and should be resorted to as occasion requires.

In cases where stricture or a spasmodic contraction is present the question comes up with regard to operation or the use of sounds, and in these instances where stricture, or rather the contraction, is of the congestive and purely irritable type, I much prefer the use of sounds of the fullest size that the canal will admit passed at intervals of from three to ten days, and I believe not only does it have the effect of dilating the canal, but it has a sedative action upon a nervous and irritable urethra. I should not be inclined in these cases to pass the instrument cold ; on the contrary, I am in the habit of using it as hot as the patient can conveniently endure. They can be passed either alternately or within a few days after the local applications are made, but that will vary, of course, with the individual features of each case and with the surgeon's belief of what is required.

Should varicocele be the cause, operative procedure is the only method that offers any chance of success, and in these instances I much prefer the operation by ablation of a portion of the scrotum rather than any attempt to tie the varicose veins. In those cases where tuberculosis, syphilis and gonorrhœa play a part, of course the internal treatment appropriate to these varieties of disease is the only method that can be pursued, and in these instances the local treatment can be of little service.

The internal treatment, I think, plays a purely secondary part, and in instances where there seems to be a debilitated condition of the patient a tonic may be, and undoubtedly is, often of service. As regards the so-called aphrodisiacs I frankly confess I am some-

what skeptical of their value, and yet I have seen cases where I had reason to believe that good results followed, especially from the use of carefully prepared preparations of cocoa (erythroxylon cocoa), ergot either alone or with iron, and occasionally damiana. In all instances when prescribing these preparations it is well to have them made up by some responsible house, as so many worthless preparations of both cocoa and damiana have been put on the market that unless the surgeon exercises some care in the selection of his drug he is apt to be disappointed. I have for the past year tried fluid extract of sabal serrulata (the saw palmetto), and without committing myself to a positive opinion upon the subject, I have thought some patients were benefited by its use; but whatever the method of treatment be, it must be remembered that these people are a class who will try the patience and good temper of the surgeon, almost more than any other; I do not except cases of chronic urethritis. They are patients who should really be commisserated, should be treated with the utmost kindness, and encouraged in every possible way.

To make a brief summary as a termination of this paper let me state:

I. That the cases of sexual debility which are marked by imperfect erections, and by premature emissions are usually, if not entirely due to the hyperæsthesia of some portion of the urethra.

II. That masturbation has very little, if anything, to do with it beyond the fact that if indulged in to excess it may induce a tendency toward this hyperæsthetic condition, but this is no more marked in masturbators than it is in those persons who indulge to excess in the venereal act.

III. That organic stricture has little, if anything, to do with it, but that associated with this hyperæsthetic condition, there is an irritable condition of the canal which produces spasmodic contractions of the urethra upon attempts to pass instruments, oftentimes during the first act of micturition and at the time of connection.

IV. That varicocele plays no unimportant part in these cases.

V. That neuralgia of the testis, if a cause of this disease, induces it merely as a secondary consequence to the pain which is one of the distinguishing features of this disease.

VI. That tuberculosis, syphilis and gonorrhœa may also play their part, and should all be reckoned with in summing up the causes which may induce this peculiar and depressing condition.

XLII. Lunatics in Public Places.

By WALLACE J. HERRIMAN, M. D.,

ROCHESTER.

The few words to which I would invite your attention, while not intended or offered as a contribution to the scientific work of the session, will perhaps serve to "point a moral" if they do not "adorn a tale."

A few months ago the country was shocked at the report of a homicide during the closing days of the greatest exposition ever attempted by this nation, the victim being the chief magistrate of the city in which it occurred. The circumstances of the shooting of Mayor Harrison are undoubtedly familiar to you, as detailed in the press despatches, but of greater significance to us as medical men was the occurrence of a day or two before, when the man Pendergast became excited in a public restaurant and announced in the presence of the mayor's private secretary that he would kill Mr. Harrison unless his demands were complied with and his claims satisfied. This statement was accompanied by the evidence of excitement and earnestness, such as pounding the table and talking in a loud tone and violent manner. It does not appear, however, that the occurrence left any serious impression upon the minds of the observers, and the threats were undoubtedly regarded as the utterances of a harmless crank. The moral to which I have alluded is that had this harmless crank (fatal expression!) been arrested and locked up at the time of this dangerous outbreak, the ensuing calamity could have been and would have been averted.

A few years ago in Rochester one W. M. manifested symptoms of insanity and was plainly controlled in his actions by delusions. They were delusions of persecution and annoyance and resulted in his threatening vengeance upon his family and others whom he imagined to be implicated in the conspiracy to ruin and murder him. His wife visited the office of the police justice a number of times and stated that her husband was insane, that she feared that her life and the lives of her children were in danger, and asked that steps might be taken to have him cared for. Each time the justice sent an officer to the house, had the husband

brought before him, lectured him on the errors of his conduct, and sent him back to his home, as a crank who never had done any harm, though he had repeatedly threatened it. On the last occasion of this sort, while the officer was taking his man to the police office, the lunatic broke away from him, ran a short distance, turned, and as the officer approached him, this harmless crank pulled a revolver and fired, killing the officer. Again the moral is plain. A commission appointed by the court discovered that the man had been a case of paranoia for eleven years, and the greatest wonder to all familiar with the case was that he had not killed some one long before.

Again, in the same city, in 1891, J. M. went home from his work one night, and without just cause or provocation killed his son with a knife. When lodged in jail, the murderer apparently had no knowledge of the occurrence, and appeared so genuinely surprised and shocked when informed of what he had done that the court ordered a commission to inquire into his sanity. The commissioners obtained a history of his life for upwards of thirty years, and learned from scores of people who had known him and worked with him that he had always been regarded as queer, harmless, but very queer and cranky at times. Thorough inquiry and subsequent observation of the man revealed a condition of masked epilepsy, in which the attacks manifested themselves by decided aberration and mental disturbance, together with irritability and a tendency to violent demonstrations. This man had been attended by physicians at various times — once when he attempted suicide by laudanum — and his medical attendants appeared to share the belief of his family, that as he never had done any one harm he never would, and the consequent indifference and inaction led to the tragedy mentioned.

In a prominent city of Maine there resides at present a former member of President Grant's Cabinet, whose wife is attracting public attention by her manifest insanity. She has delusions of a religious nature, imagining herself the founder of a new creed, and possesses the old and familiar delusion of being in direct communication with the Almighty. By reason of her strong intellectuality and high social standing she has attracted a following of women of a lower social class, and has made them blind emulators of her insane example. She instructs them to starve the devil out of their bodies by "going through the wilderness," which

consists of fasting forty days and nights. Several have attempted the feat in the blind fanaticism which made them submissive to this insane woman's instructions, and in some instances she told mothers that their infants must be purified by being fed nothing but "body and blood," otherwise crackers and wine. A part of her teaching is that the devil is resident in the human body unless this purifying process is gone through with to starve him out. One point of her doctrine to which, perhaps, many of us will subscribe while yet claiming to be sane and clothed in our right minds, is that the particular nook of the human anatomy wherein his satanic majesty makes his residence is the vermiform appendix. The accounts of this woman's insane conduct and its pernicious effect upon others say that only where parents have undertaken to starve their infants have the police interfered. In these cases the children were taken away from their parents and placed in institutions to be cared for. But they do not interfere with the source of the trouble. The insane woman is permitted to exercise her malign influence over the fanatics who believe her inspired of God because no one has the moral courage or the right to cause her to be removed to an hospital or asylum.

The foregoing are but a few cases that have been brought to notice recently. They are types of many occurring frequently in all parts of the country, and resulting in tragedies which are preventable. We do not need new laws to remedy this evil. There are laws enough, even the one permitting an arrest on suspicion of insanity is enough, were there some one ready to enforce it. As a part of that modern science, preventive medicine, I would suggest that this society use its influence to have the officers of the courts more awake to their duty in these cases, and ready to act promptly in a case of suspected insanity, instead of waiting until a capital offense has been committed, when an arrest follows as a matter of course. The public mind, and especially the professional mind, should be educated to recognize the fact that there is no such thing as a harmless crank. A person who is on the ragged edge of insanity — who stands in that border land where he is neither palpably insane nor reasonably sane — who develops a delusion, is not harmless, and more particularly if that delusion be one of persecution by other individuals, societies or agencies. In the belief that he is being persecuted and abused, the victim of this unfortunate delusion will sooner or later follow

the first law of nature, self-preservation, and arm himself. Then, in a moment of excitement, the opportunity occurs and a life is put out which is more than likely to be a valuable one to the community, for not only does death love a shining mark, but so, also, does the paranoiac's delusion.

It comes to the family physician oftener than to any one else to see the first manifestations of mental disturbance. I urge upon you to be prompt in advising such action as will not only benefit the one whose mind is giving away, but also protect those around him. I insist that a large proportion of the homicides which occur from day to day are preventable, and it should be a part of the education of every physician to know that any delusion, however trivial and harmless it may appear in itself, is likely, yes, very probable, to develop dangerous tendencies in its growth, and it is the duty of the medical man to warn the friends of this and urge such precautions as may be necessary. I know full well, however, that the family and friends of one whose mind is becoming diseased are too often influenced by their hearts rather than their judgment. The physician may do his duty, and the family having been warned of the danger, yet delay action until driven to it by the very things they were told would come. Now, I ask what is to be done with these cases? Having asked this question let me ask another. Would it not be well to have in each county an examiner in lunacy who shall be a man of sufficient experience with the insane to enable him to judge of the condition and the needs of a case of suspected insanity? Let him be a State or county official, let him be paid from the State or county treasury by salary or fees, these are secondary considerations. Make him a recognized public officer, whose duty it shall be to investigate cases of suspected insanity whenever he may learn of their existence. Go further if you wish, and require that physicians shall notify him of cases in their practice that present evidences of insanity, as infectious diseases are now reported to the boards of health. Let him report to a court of record in the county in which he acts, and such measures be adopted as may seem best. This is crude and imperfect, I acknowledge, but the time is coming when some such official will be necessary and will exist, and I therefore bring the matter before the Society at this time.

XLIII. The Practical Workings of the New Laws for the State Care of the Insane.

By CARLOS F. MACDONALD, M. D.,
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The fact that the Medical Society of the State of New York is in large measure entitled to credit for the original impulse and the early effort which resulted in two greatly advanced steps taken by the State in dealing with its dependent insane, first in 1836 and again in 1865, and also that it actively participated in the final movement which culminated in the passage in 1890 of the so-called State Care Act — steps which may not inaptly be termed epochs in the progressive development of this most important subject of the State's relations to those of its citizens, who, afflicted by insanity, are thereby reduced to dependence on the State's charity for their subsistence — would seem to be sufficient in itself to warrant the writer, who is the medical member of the only official body of the State charged with the administration of the laws relating to the insane and the general supervision and oversight of the hospitals, asylums, homes, and retreats, both public and private, established for the care and treatment of this unfortunate class, in presenting to the Society an outline of what that administration has done and is doing and of the general condition of the insane in the State at the present time as contrasted with the state of things which formerly prevailed in relation thereto.

Furthermore, in view of the great frequency and widespread prevalence of insanity throughout the civilized nations of the globe, as compared with other diseases, many of which are properly regarded as of very great importance, and respecting whose nature, symptoms, and treatment we, as physicians, are required to be well informed; and in view of the fact that insanity involves a wider range of interests and is more far-reaching in its effects — whether as regards the individual sufferer, his family or the community at large — than any other disease to which mankind is liable, the subject of the care and treatment of the insane is obviously one of great public importance; while to the medical

profession, whose members must encounter cases of mental disease with more or less frequency from the outset of their professional practice, it has a peculiar interest. Then, too, our lawmakers, in recognition of the fact that insanity is a disease, or, in other words, a medical question, have conferred exceptional powers upon our profession in the matter of making certificates in lunacy, whose effect is to deprive persons of their liberty, the deprivation of this constitutional right being in most cases of insanity a necessary incident to the patient's proper treatment and safe-keeping as well as essential to the public safety. Such being the case, it is eminently proper that the medical profession, to whom alone is delegated this extraordinary power — at least, so far as the initial legal step is concerned — should insist that those who are deprived of their liberty by reason of the action of its members are properly housed, fed, and clothed, and supplied with competent supervision and medical care and treatment. In a word, it is the duty of the medical profession to insist that the insane shall be amply provided with everything which medical science has declared to be essential to the restoration of those who are recoverable, and to the proper care and comfort of those who do not recover.

Our interest, both as physicians and public-spirited citizens, should especially be invoked in behalf of the dependent insane, in whose ranks are found representatives of all professions, trades, and occupations, and most of whom were self-supporting, respectable citizens before the onset of their disease, and who, though necessarily now maintained at public expense, are, with few exceptions, in no proper sense of the term, paupers — the term insane pauper being properly applied only to those who were paupers before they became insane. It should be borne in mind in connection with this subject that many self-supporting citizens are not possessed of any large amount of means over and above their immediate necessities, so that, if the hardworking professional man, mechanic, farmer, teacher, or laborer falls a victim to insanity, he must necessarily, sooner or later, become a dependent upon the public bounty, even though he may have been a taxpayer before the onset of his disease.

In support of the claim here indicated respecting the importance of insanity as compared with other diseases, the writer would recall the trite facts that the symptom group which we denominate insanity is in every case but the outward expression, on the

mental side, of existing disease or disturbance of the brain, the organ through which the operations of the mind are made manifest to us, the term mind being here used in a physiological sense, and implying the sum total of those brain functions which are known as thought, feeling, and will; that insanity is a disease which invades all classes, and from which no one, be he rich or poor, high or low, can claim exemption; that it involves to its victim, to his immediate friends, and to the community a wider range of interests than any other disease. To the individual it involves a loss or perversion of that faculty which alone distinguishes man from the lower animals; it also involves usually the loss of the liberty guaranteed to every individual by the Constitution; it involves the loss of control of his property and affairs, a disturbance or destruction of his social and business relations, enforced separation from his family, and. if his disease happens to take an unhappy form, it involves great mental anguish and suffering, and possibly the loss of his life through self-destruction or exhaustion; or, if the case fail of recovery, it involves a prolonged and often weary existence, which might properly be termed "a living death." To the individual's family it usually involves great anxiety and distress, occasioned by the sad spectacle of a loved one with reason dethroned, and the putting of this loved one away in the care of strangers; it involves the stigma which society unfortunately and unjustly attaches to the taint of insanity, and which is usually regarded by the relatives of the sufferer as something akin to shame and distress. It frequently involves a cutting off of the source of income, especially if the afflicted one be the bread-winner of the family; also the added expense of commitment to and maintenance in a hospital for the insane; and finally it involves exposure of the lives and property of the family to danger from violent and destructive tendencies of the patient. To the community it involves great danger to life and property from the acts of homicidal and dangerous lunatics; also a large loss to the body politic by the withdrawal from the ranks of wage-earners of the earning capacity of many thousands of individuals — substantially all of the insane being adults and for the most part in the active stage of life — and last, though by no means least, it devolves upon the community an enormous burden of taxation incident to providing for and maintaining hospitals and asylums for the custody and care of a vast army of insane peo-

ple, there being to-day in the public and private hospitals and asylums, homes and retreats in the State of New York alone upwards of 18,000 insane persons held under certificates of lunacy, not to mention the large number of unapprehended, unrecognized, and so-called "border-land" cases, which are liable at any time to call for medical attention and advice.

The number of committed insane in the State of New York on the first day of January, 1894, was: In State hospitals, exclusive of the Hospital for Insane Criminals, 8,901; in the so-called exempted county system, embracing the asylums of New York city and Kings county, 8,423; and in licensed private asylums, homes, and retreats, 830, making a total of 18,154. Of this number, 8,500 were men and 9,654 women. The aggregate cost of lands, buildings, equipment and furniture devoted to their uses October 1, 1893, was, in round numbers: For the State hospitals, $11,000,000; for the asylums of New York and Kings Counties, $4,600,000; and for the licensed private institutions, $1,110,000 — making a total cost for this purpose of $16,710,000. The cost of maintenance of the insane for the fiscal year ending September 30, 1893, was, in round numbers: State hospitals, $1,837,000; asylums of New York and Kings Counties, $1,254,000; licensed private asylums, $480,000 — making a total annual cost for maintenance, in round numbers, of $3,376,000. The institutions in the State, not including the Hospital for Insane Criminals, are: State hospitals, 8; county asylums of New York and Kings, 6; licensed private institutions, 17; or 31 in all.

The foregoing statement of facts and figures is here presented merely for the purpose of calling attention by way of introduction to the magnitude and importance of the disease under consideration, and as suggestive of the wide range of interests it involves, whether viewed from a professional, sociological, or economical standpoint.

The first attempt on the part of the State of New York to provide State care for the insane was made nearly sixty years ago, when, in 1836, the Legislature, in response to a memorial from this society, praying for the establishment of a suitable State asylum for the insane, created the State Lunatic Asylum at Utica, now the Utica State Hospital. Prior to that time the insane poor, both acute and chronic, were mostly cared for in county or town poorhouses, there being substantially no other provision for

them. Provision was made in the original charter of the Utica Asylum whereby patients who failed to recover after a certain period of time or who should be pronounced incurable, might be removed to the county poorhouse, upon the superintendent's certificate that the patient was "incurable" or "not likely to be benefited by further treatment, and could probably be made comfortable in the poorhouse." This was a most inhuman and barbarous provision, and one that was continued in operation under certain modifications, though with practically the same results, until the creation of the State Commission in Lunacy in 1889, and the subsequent passage of the State Care Act in 1890; so that while the establishment of the State Lunatic Asylum in Utica in 1836,* was a practical recognition on the part of the State of the principle of State care, its beneficence extended only to State care for *the acute or recent insane*, while at the same time it countenanced, or at least tolerated, a system of county or poorhouse care in its worst form by permitting the superintendent of the asylum, in his discretion, to transfer to county houses, under the guise of incurability the friendless, the violent and destructive, the filthy and infirm, and the feeble and helpless — the very classes which of all others most need the fostering care and protection of the State. This pernicious system continued for a period of nearly thirty years, during which time the poorhouses became filled to overflowing with mentally afflicted human beings, who were restricted to the merest pretense of custodial care and maintained in a spirit of parsimony whose chief apparent ambition was to see on how small a pittance body and soul could be kept together. The keeper of one county poorhouse publicly proclaimed in 1889 that he maintained the insane of his county at a cost of ninety cents a head per week, including food, clothing, bedding, warmth, lights, and medical attendance.

Subsequently, in 1865, again through the active agency of this society, which, through its secretary, the late Sylvester D. Willard, investigated and reported upon the condition of the insane in the various poorhouses of the State, the Legislature passed the "Willard Asylum Act," which provided for the establishment of a State asylum for the chronic insane. This act, which has been aptly characterized as the "second era of the lunacy legislation of the State—that of *State care of the chronic insane*," contemplated

*Opened for the reception of patients in 1843.

the removal of all the chronic insane from the county houses to the Willard Asylum, and aimed to prohibit the counties, except New York, Kings, and Monroe, from thereafter caring for their chronic insane. So that, with the establishment of the Utica Asylum for the Acute Insane and the Willard Asylum for the Chronic Insane, the State had, theoretically at least, adopted the policy of caring for all its dependent insane. But through delay in establishing and extending the Willard institution, and despite the subsequent opening of the Hudson River State Hospital and the Homœopathic Hospital in 1871, the Buffalo Asylum in 1880, and the Binghamton Asylum for the Chronic Insane in 1881, the supply of accommodations for the State's insane was still inadequate to the demand. This lack of accommodations in the State asylums was made the basis of an appeal to the Legislature by county authorities and others to permit the counties to again care for their chronic insane. In response to this appeal the Legislature granted exemption to several counties by special act, and also in 1871 authorized the State Board of Charities, in its discretion, to grant licenses to counties to care for their chronic insane under certain conditions, and to exempt such counties from the Willard Act, and also to revoke said licenses in case of failure to comply with the terms and conditions imposed. Under the provisions of this scheme for a return to the wretched county system, the State Board of Charities, a majority of whose members were adherents and advocates of separate provision for the chronic insane in either State or county asylums, granted licenses to nineteen counties, in which were established so-called county asylums, located for the most part on the grounds of and adjacent to the poorhouses and under the same management, being, as a matter of fact, in most cases merely an integral part of the poorhouse, under the control of a lay keeper, and conducted on a similar basis as regards the standard of care.

One of the evils of this system, aside from the wretched surroundings and care to which it consigned the dependent insane, was that it pauperized substantially all who failed of recovery after a year's residence in a State asylum, and even those who were transferred from the "acute asylums" to the Willard and Binghamton asylums as incurable were made unhappy by the lower standard of care and treatment which they received at the latter institutions, as well as by the implied fact that

hope of recovery in their cases had been abandoned. Furthermore, it was found to be the practice of many of these exempted counties to receive into their so-called asylums acute cases directly from their homes, which was a clear violation of law. And yet, strange as it may now appear, the licenses granted to these counties by the State Board of Charities were permitted to stand in the face of the evils here referred to; and, moreover, and still more strange, the board which granted them indirectly encouraged and commended this system in some of its official reports.

The State Charities Aid Association, a voluntary organization, in its report on the insane for 1893, says: "Meanwhile the humane thought of the day being thus earnestly engaged in trying to solve the difficult problem of how to obtain for the indigent insane the best treatment that an advanced civilization could give them, the pernicious legislation of 1871, already referred to, was slowly but surely sapping the vitality of the reform movement of 1865 in behalf of the chronic insane. County after county applied for and obtained exemption from the Willard Act. By October 1, 1887, nineteen counties had thus been authorized to keep their milder cases of insanity. It is true these exemptions were granted by the State Board of Charities under promise from the counties 'to give their insane just as good care as the State gave'—promises, alas! never kept. No longer, as of old, were the chronic insane to go from poorhouse to State hospital, but from State hospital to poorhouse. Gradually, year by year, and so slowly that we scarcely realized it, the poorhouse officials were tightening their grasp upon these poor people, until suddenly we were confronted by the alarming fact that the supervisors of one-third of the counties were arrayed in favor of the poorhouse system."

This was the condition of affairs when, in 1889, the State Commission in Lunacy was created, to which body was transferred, among other things, the power hitherto possessed by the State Board of Charities in the matter of granting exemptions from the Willard Act. It is needless to say that the Commission in Lunacy promptly declined to grant any further exemptions to counties; and how the commission, after having made a tour of the county asylums of the State, exposed and denounced what it there discovered in its first annual report to the Legislature in 1889, is a

matter of recent history in relation to the insane which is too well known to all who are interested in the welfare of this class to call for more than passing notice here.

The State Charities Aid Association, which for years had strenuously opposed the county care system, and had unsuccessfully striven for two successive years to induce the Legislature to pass its bill for State care of the insane, in the report above referred to, says: "As one reads the first annual report of the Commission in Lunacy, written in 1890, glowing with indignation as it recounts the sufferings of these poor people, one is surprised to find how little progress has been made in all those years. The system of poorhouse care has proved itself radically defective. Thank God! this horrible system is now a thing of the past." And again in the same report: "Heretofore the State Commissioner in Lunacy had almost no power beyond that of inspection and report. He had neither office nor clerical assistance, and could accomplish but little. When, therefore, the Legislature of 1889 created a State Commission in Lunacy of three members, with greatly enlarged powers and duties, a much needed reform had been effected. . . . The thorough inspection made by this commission of the asylums of the entire State, and their outspoken denunciation of the dreadful condition of the insane in the exempted county asylums, as submitted in their first report to the Legislature, may justly be regarded as the death-blow to the poorhouse system."

Following this first report of the Lunacy Commission to the Legislature, the State Charities Aid Association, under the able leadership of that staunch friend of the dependent insane, Miss Louisa Lee Schuyler, again brought forward its bill for State care, and this time succeeded in passing it in spite of "organized, vigorous, and determined opposition emanating from supervisors and superintendents of the poor of exempted counties."

The essential features of the State Care Act may be briefly summarized as follows: The abolition of the unscientific and inhuman *legal* distinction between acute and chronic insanity; the division of the State by counties into hospital districts, and compelling the hospitals to receive and care for all the dependent insane, both acute and chronic, within their respective districts; requiring the Commission in Lunacy to cause the removal of the insane poor from the county houses to State hospitals as fast as accommodations could be provided therefor; pro-

viding for the erection of comparatively inexpensive buildings of sufficient capacity on the grounds of existing State hospitals, the cost of erection, equipment, and furnishing of said buildings not to exceed the sum of $550 per capita, upon plans to be approved by the State Commission in Lunacy; requiring all county superintendents of the poor, or town, county, or city authorities, before sending a patient to any asylum, to see that he is in a state of bodily cleanliness and is comfortably clad, in accordance with regulations to be prescribed by the president of the commission; requiring that, in the case of transfer of a female patient, she shall be accompanied by a female attendant, unless she be transferred by her husband, father, brother, or son, and that, after said patient or patients have been delivered to the managers or trustees of the State hospitals, the care and custody of the county authorities over said insane persons shall cease, the expense of such transfer to be paid by the State; after sufficient accommodations shall have been provided in State institutions for all the pauper and indigent insane of all the counties of the State, the expense of such care, maintenance, treatment and clothing of indigent insane patients in State hospitals to be no longer a charge upon any county, after the 1st of October next ensuing, but the cost of the same shall be paid out of the funds provided by the State for the support of the insane; that, after the board created by the State Care Act for the purpose of districting the State shall have certified to the Secretary of State that sufficient accommodations have been provided in State institutions for the indigent insane, no insane person shall be permitted to remain under county care, and that all insane who are now or may hereafter become a public charge shall be transferred to a State hospital, without unnecessary delay, there to be regarded and known as the wards of the State and to be wholly supported by the State; requiring the State Commission in Lunacy, whenever it shall deem it necessary and expedient, by reason of overcrowding, or in order to prevent the same, to recommend in its annual report to the Legislature the erection of such additional buildings on the grounds of any or all State hospitals then existing as shall in the judgment of the commission provide sufficient accommodations for the immediate and prospective wants of the insane of the State, or, if said commission shall deem it more expedient, it shall recommend the establishment of another State hospital or hospitals in such part of the

State as, in its judgment, will best meet the requirements of the dependent insane; requiring the State Commission in Lunacy to hereafter furnish the Comptroller, on or before the 15th of September in each year, an estimate as to the probable number of persons who will become inmates of the respective State asylums during the year beginning on the 1st of October next ensuing, and the cost of the necessary buildings and equipment, if any, which will be required to carry out the provisions of this act; requiring the managers or trustees of each of the said asylums, on or before the 15th of September in each year, to furnish to the Comptroller an estimate of the cost of maintaining the probable number of patients who will be inmates of the respective asylums during the year beginning on the 1st of October next ensuing; on the basis of these estimates the Comptroller to report, in his next annual report to the Legislature, his estimate of the amount to be provided for by the State for the support of such insane patients, and for the erection and equipment of such buildings as may be recommended.

The counties of New York, Kings, and Monroe are exempted from the operations of the State Care Act, but provision is made that whenever these counties, or any one of them, shall desire to be included under the provisions of the act, application may be made in writing to the Governor by the local authorities to transfer their asylums to the State upon such terms and conditions as may be specified in their application, the Governor to transmit the application to the Board for the Establishment of State Insane Asylum Districts created by the act, whereupon said board shall examine into the condition of the buildings, lands, and appurtenances sought to be transferred with reference to their value, and to ascertain whether such property is suitable for the purpose of a State hospital for the insane, and, if so, whether the terms and conditions proposed are just and proper, and to report its findings and conclusions to the Governor, whereupon the Governor shall transmit to the Legislature the report of said board with such recommendations, if any, as he may deem proper for the conversion of such county asylum into a State hospital for the insane.*

The act, moreover, revoked all exemptions heretofore granted to counties to care for their insane and prohibits the granting of

* Under this provision the Monroe County Asylum was converted into the Rochester State Hospital in 1891.

further exemptions; it also provides that no insane person now or hereafter under the care of any State hospital shall be returned to or committed to the care of any superintendent of the poor of any county or to any other town, county, or city authorities, and the said superintendents of the poor are forbidden to receive any such patient who may be returned or committed to them in violation of the act.

By the adoption of the State Care Act, as outlined above, the State not only emphatically reaffirmed its policy of State care, which began in 1836, and which was extended in 1865, but unequivocally committed itself to the extreme and logical limit of the principle, in fact as well as in theory, that the dependent insane are the wards of the State and that the interests and maintenance of the insane should be confided exclusively to the State; while the terms of the act rendered it easily workable and susceptible of unlimited extension to meet the increasing demands which may from time to time be made upon it.

Following the passage of the State Care Act, and supplemental thereto, the Legislature appropriated $454,850 for the erection of additional buildings upon the grounds of the existing State hospitals, which, together with the partial completion of the St. Lawrence State Hospital, at Ogdensburg, were sufficient to provide accommodations for all of the insane then in the custody of the counties as well as for recent cases.

The erection of these buildings was rapidly accomplished, within the per capita cost, $550, fixed by the act, and in 1893 the board was able to certify that sufficient accommodations, within the purview of the statute, had been provided, whereupon the Legislature, upon estimates furnished by the commission, passed an act known as Chapter 214 of the Laws of 1893, for the care, medical treatment, clothing, support, and transportation to State hospitals of the insane poor. This act provided for the levying of a tax of one-third of a mill upon the taxable property of the State for the support of the State hospitals, the sum realized from this tax amounting in round numbers to $1,350,000, which, together with the estimated receipts of the State hospitals for the support of private patients and from other sources, brought the sum up to, in round numbers, $1,650,000. This act, which went into effect on October 1, 1893, provides for the submission to the Commission in Lunacy by the hospitals of itemized monthly estimates for their

current expenses, these estimates to be revised by the commission as to quantity, quality, and price of supplies and wages, and subsequently to be certified to the Comptroller for payment of the amount of the estimates, as revised, to the respective treasurers of the State hospitals.

Having thus imperfectly outlined substantially all the legislation had for the insane, including the creation of the Commission in Lunacy in 1889—which in reality was the initial step in the final effort for the establishment of State care for the dependent insane—down to and including Chapter 214 of the Laws of 1893, which carried this humane and beneficent measure into full operation, it becomes pertinent to inquire as to what have thus far been the practical results of this legislation. In other words, what improvements, if any, have been made in the methods governing the commitment and general and medical care and treatment of the insane and in the condition and management of the hospitals and asylums established and maintained for the benefit of this unfortunate class; also what, if any, advantages are derived to the taxpayers of the State as a result of the new method of supporting the dependent insane? Among the more important improvements and reforms which have been established and carried into successful practice under the new laws may be mentioned the following:

1. The adoption, July 1, 1890, of a new and improved form of medical certificate in lunacy, designed, on the one hand, to facilitate the commitment of insane persons to institutions, and, on the other, to surround the liberty of the individual with better safeguards against carelessness and wrongful intent than had theretofore existed, while at the same time permitting of efficiency and celerity of operation, and also insuring a much greater amount of information for the medical officers of the hospitals than was possible under the method which it supplanted. In order to secure uniformity, all blank commitments are now furnished by the commission, the blanks being printed on stereotyped plates, which are the property of the State. These printed blanks are used for copies as well as originals, and may be obtained free of cost on application to county clerks, superintendents of hospitals, asylums, homes, or retreats, and superintendents of the poor. Certified copies of all commitments are required to be filed in the office of the commission within ten days after the patient's admission to the hospital, where they are carefully scrutinized with

reference to correctness of form, sufficiency as to facts indicating insanity, and also as to the qualifications of the certifying physicians. This enables the commission to detect and promptly correct any irregularity, whether intentional or otherwise, in the commitment of the insane. As showing the extent to which error has been eliminated by the adoption of this form, it may be stated that the commission has now to reject by reason of defect as to form, insufficiency of facts, or lack of legal qualifications of examining physicians, less than a half of 1 per cent of all the medical certificates received.

2. A registration in the office of the commission of all qualified medical examiners in lunacy in the State, whereby the commission is enabled to at once determine, on receipt of a lunacy certificate if the examiners signing the same are legally qualified to perform these services.

3. A complete registration in the office of the commission of all persons held in custody as insane, whether in public or private institutions, with minute data as to the name, age, sex, nativity, occupation, civil condition, date of commitment, names of the signers of the medical certificate and of the judge approving the certificate, date of admission, whether brought from home or an institution, by whom brought, and the insane person's physical condition. The records also show the date of discharge of each patient, and whether recovered, improved, or unimproved, and to whose care discharged; if transferred, for what cause and to what institution, and, if dead, the date and cause of death — thus enabling the commission to determine accurately at all times the number, condition and increase of the insane in the State and to furnish for proper use this and other valuable information which it was impossible to obtain before the establishment of this bureau of registration.

4. The adoption for all the hospitals and asylums, public and private, of a uniform system of statistical returns, thus enabling any one who may desire to do so to make intelligent comparisons as to the results in the various institutions in the State.

5. The establishment of a uniform system of medical records, including case-books, prescription records, records of admissions and discharges, daily reports, etc., and the requirement that entries showing the condition and progress of each case shall be made in the case-book records at least once in each month

during the first year and at least once in every three months thereafter.

6. The establishment of a uniform system of receipts and expenditures in all the State hospitals, thus providing for intelligent comparison as to the expenses of these institutions. Formerly each hospital had its own system of records and accounts, each being different from that of any other hospital.

7. A provision for the transfer of patients from one institution to another, on the order of the commission, whenever, for any sufficient reason, it may be deemed desirable to do so.

8. A regulation providing for the admission of private patients to State hospitals from any part of the State without restriction as to district, at a maximum rate not to exceed $10 per week, at the same time protecting the rights of public patients and of such as can pay only small sums per week, by requiring that no private patient in any State hospital shall be permitted to occupy more than one room for his or her personal use, or to command, except for medical reasons, the exclusive services of an attendant, and that there shall be no distinction between public and private patients as regards the scale of care and accommodations furnished them.

9. An effort, which has been fairly successful, to induce or compel the friends or relatives of patients who are able and legally liable therefor to reimburse the State for the support of such patients. It was found that a large number of persons who were able and liable had heretofore evaded this obligation.

10. The adoption of regulations governing the transfer of patients from their homes or from poorhouses to State hospitals, requiring that such patients before being sent to the asylum shall be in a state of bodily cleanliness and suitably and comfortably clad.

11. Providing that the hospitals shall send a trained attendant to bring patients thereto, and that in all cases of female patients there shall be provided a female attendant. This system insures a greater degree of comfort and decency in the removal of patients to the hospitals, and it has thus far shown a very marked reduction in the cost of such transfer as compared with the old system of transfer by county superintendents of the poor.

12. Provision for the paroling of patients who are not regarded as homicidal, suicidal, or otherwise dangerous for a period of not

more than thirty days, during any portion of which they may be returned to the hospital without new process of commitment, or they may be permanently discharged, thus affording patients whose condition is such as to warrant it an opportunity to visit their homes or to go out on trial before final discharge.

13. A regulation requiring that all patients on admission to an hospital or asylum for the insane, whether public or private, shall be immediately informed of the nature of the institution and the fact that they are detained there under legal commitment. The adoption of this regulation was suggested by the fact that patients frequently complained to the commissioners that they had been been decoyed into the institution and only accidentally discovered that they were detained in a lunatic asylum. Several instances were found where the fact of commitment and detention had apparently been deliberately concealed from the patient until it was made known to him by the visiting commissioners. The deception of insane persons in this manner is deprecated by all who have had experience in dealing with this class, it being recognized as an important element in the treatment of the insane that no deception should be practiced.

14. A division of the State into hospital districts with reference to the number of insane in each district, and the extent of accommodations in the hospital located therein. This provision of the State Care Act is sufficiently elastic to admit of a change in the limits of any district whenever it shall be deemed necessary to more conveniently care for the insane in the various hospitals, or to better accommodate the convenience of any particular locality.

15. A change in the legal title of the State institutions from "asylums" to "hospitals" and a reorganization of those State institutions,* which were formerly asylums for the chronic pauper insane upon a hospital basis, thus establishing the hospital idea for all.

16. A provision for the admission of public patients to a State hospital beyond the limits of the district in which they reside whenever, for any sufficient reason, they or their friends may so desire. This is especially designed to provide for such patients as may desire treatment in a homœopathic hospital, or in case of patients residing in the homœopathic hospital district who may desire other than homœopathic treatment.

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* Willard and Binghamton.

17. An order for the regulation of the correspondence of the insane, providing that each patient be permitted to write to some relative or friend once in two weeks and oftener if necessary, in the discretion of the medical superintendent, and, if patients themselves are unable for any cause to write, the medical superintendent must delegate some proper person to write for them at suitable intervals if they so desire; all letters to be forwarded at once to destination unless they are profane, obscene, or too illegible or incoherent to be understood, and the postage must be furnished by the institution if the relatives or friends are unable to provide the same. All letters detained because of obscenity, profanity, or for any other reason must be forwarded at once to the office of the commission and the reasons for detention indorsed thereon. All letters addressed to the Governor, attorney-general, judges of courts of record, district attorney, or to the State Commission in Lunacy must be forwarded at once without examination. This order is designed to afford patients who regard themselves as illegally detained or improperly treated an opportunity to communicate with their friends or with any official in the State who would have jurisdiction in a lunacy case.

18. The investigation by the commission of hundreds of complaints of illegal detention or abuse on the part of the patients, every patient who requests it, or whose friends may request it, being granted a hearing apart from any officer of the hospital, if the patient so desires.

19. The adoption of an order requiring the superintendent or physician in charge of each institution for the care and treatment of the insane not to permit the service of any legal process whatever upon an insane patient, except upon the order of a judge of a court of record, which order shall show that the judge had knowledge of the fact that the person upon whom the process is sought to be served was at the date of the order an inmate of such institution; that no insane person be permitted to sign any bill, check, draft, or other evidence of indebtedness, or to execute any deed or mortgage, or other legal conveyance, except upon the order of a judge of a court of record which shows that the judge had notice of the fact that the person whose signature is sought to be obtained was at the date of the order an inmate of an institution for the insane; also that the substance of the order and the proceedings had thereunder must be entered in

the history of the patient in the asylum case book, and a copy of the same forwarded to the committee of the person and property of the patient, if there be one, or, if there be no committee, then to the nearest known relative or next friend of the patient. This order is designed to protect the interests of the insane against designing persons, and especially to prohibit the wrongful service of papers on lunatics in divorce proceedings.

20. A regulation for the admission of voluntary patients to such of the private institutions for the insane as are conducted on the so-called "family plan." For legal reasons, which are regarded as sufficient, the admission of voluntary patients to public hospitals or to incorporated private hospitals is not permissible.

21. The adoption of an order revoking the licenses of all private asylums conducted by laymen, and restricting the licensing of private asylums, homes, and retreats to reputable physicians of experience in the care and treatment of the insane.

22. The adoption of a regulation requiring all hospitals and asylums for the insane, both public and private, to provide a liberal amount of fire protection, the extent and variety of such means of fire protection being determined by the commission according to the location, extent, and arrangement of the institution.

23. The substitution, in all cases, of wire beds, hair mattresses, and woolen blankets for straw beds and cotton quilts, which were formerly more or less in use in many of the institutions.

24. An order prohibiting the purchase of adulterated food supplies of any kind for use in State hospitals; also for the purchase, wherever necessary, of a generally better quality of staple articles of food supply; also a better grade of clothing, and better quality and increased amount of furniture, in the way of carpets, rugs, easy-chairs, pictures, etc.; a large increase in the amount of reading matter supplied to patients, and a marked extension of the facilities for amusements and diversion and for the industrial occupation of patients; also for an increased ratio of attendants to patients, the establishment of attendants' homes at several of the hospitals, and a better rate of compensation to attendants; also the introduction of women attendants in the men's convalescent wards and in the ward dining-rooms for men; the introduction of spray baths, especially for the bathing of filthy patients; the abolition of airing courts or inclosed exercise yards, thus affording

patients a larger degree of freedom than heretofore; the complete abolition of all mechanical restraint in the management of the insane, except in one or two hospitals where there is still a tendency to cling to old methods which are now nearly everywhere regarded as obsolete; the establishment of an efficient system of night service of attendants in all the public hospitals for the insane; the general adoption in the hospitals, both public and private, of a uniform dress for attendants' wear; the establishment of infirmary or hospital wards, under the charge of a hospital attendant skilled in nursing the sick, for patients who are sufficiently ill to require treatment in bed.

25. The removal of patients to other States and countries, in cases where it can be determined that the patient is a non-resident of the State. By this means the number of public patients supported by the State has been materially lessened.

26. A successful effort to induce the authorities of New York city to set apart specific appropriations for the benefit of the insane in the institutions under the Department of Charities and Corrections, and to prohibit the use of these moneys for any other purpose. This has resulted in a general improvement of the standard of care of the insane in the city institutions, and especially in the matter of bedding and in the quality of the food supplies, beef being now supplied in carcasses in place of "chucks and necks" as formerly. A better quality of flour has also been secured to the inmates of these institutions.

27. The adoption of an order by the commission providing for the appoinement of a general medical superintendent for the Kings county lunatic asylums, who shall have power to make rules and regulations for the government of the asylums, appoint and discharge all employees, regulate the dietary, make ordinary repairs, etc. This order was appealed from by the local board, but the higher courts sustained it, and its effect has been to remove the immediate management of the Kings county asylums from partisan influences which have hitherto been so detrimental to these institutions, and to generally improve the standard of care afforded to their inmates.

28. The publication of an official directory of all the hospitals and asylums, licensed private asylums, homes, and retreats for the insane, in the State, showing the location and capacity of each institution, how reached, and the name of the superintendent or

physician in charge; also in the case of private institutions, the minimum rate per week charged for maintenance.

29. Provision for the clinical teaching of insanity in hospitals for the insane by the admission to the wards thereof of students of medical colleges situated in their vicinity, as well as of practicing physicians, who may desire the opportunity of clinically studying mental diseases, under such restrictions as the medical superintendent may deem wise and proper, thus enabling, as far as practicable, physicians engaged in general practice, and upon whom the first care of nearly all cases of insanity necessarily devolves, an opportunity to acquire a practical knowledge of this disease, if they so desire.

30. Provision for the appointment from among recent graduates in medicine of two medical internes in each State hospital, in addition to the regular medical staff, thus providing for a training school for medical officers in these institutions, from which the regular medical staff may be recruited.

31. The abolition of the spoils system in the selection of medical officers of State hospitals through the adoption by the State Civil Service Commission, upon the recommendation of the Commission in Lunacy, of a regulation requiring appointments of all medical officers in State hospitals to be made only after competitive civil-service examination, and raising the standard of requirements for eligibility to such examinations. This has already resulted in the merited promotion of a number of experienced assistant physicians who otherwise would not have obtained promotion save through favoritism.

32. A material increase in the proportion of medical officers to patients in both public and private institutions.

33. The enactment and fulfillment of a law requiring the appointment of a woman physician on the staff of each State hospital, at a fixed salary of twelve hundred dollars per annum.

In connection with this subject it may be stated that the commission has in contemplation the appointment at an early day of a special pathologist, with a completely equipped laboratory, for the prosecution of investigations in neuro-anatomy and neurophysiology and in the study of brain pathology. It is designed to make this department practically a school for the teaching of brain pathology to physicians who may desire to avail themselves of it, and especially to such of the physicians on the staffs of the

respective State hospitals as possess an aptitude and desire for such work.

Respecting what has been done in the direction of improvement of the hospitals themselves and for the promotion of the welfare and comfort of their inmates, as a result of the adoption of the policy of State care, a perusal of the annual reports of the State hospitals will show that the condition of these institutions as regards organization, equipment, sanitary condition, fire protection, clothing and furniture, food supplies, discipline, nursing, means of diversion and occupation, and medical service has been steadily progressive, and that the standard of care generally is very much higher than it was five years ago, when the State Commission in Lunacy was created.

These reports not only reflect the improvements which have been wrought at the Binghamton and Willard Hospitals, which formerly cared only for the so called "chronic pauper insane," and maintained a correspondingly low standard of care, and the progress of the Rochester State Hospital, which, prior to 1891, was a county asylum with meager facilities for the care and treatment of its inmates, but they substantially outline the present status and condition of all the eight State hospitals.

The superintendent of the Binghamton State Hospital in his report for 1893, states as follows:

"Analysis of the table showing the causes of death, and comparison with similar tables for preceding years, afford extremely gratifying results. The reduction in the death rate is not only gratifying when computed on the number admitted, but is also highly satisfactory when based on the average daily population, for on this basis, during the past ten years it has fallen from 11.73 per cent in 1883 to 6.35 per cent in 1893. The question naturally arises, to what is this remarkable improvement due? To you who have seen the institution grow from a poorly equipped, crudely furnished, poverty-stricken asylums for the chronic insane, into the splendid hospital of to-day, supplied with modern sanitary appliances, provided with good food and raiment for its patients, diversified occupation and amusements to engage their hands and minds, and kind nurses to watch over them, the question needs no answer. Improved surroundings, humane care and treatment, freedom from mechanical restraint, and the largest personal liberty consistent with safety, are the agencies through which the change has been accomplished. *Up to the year* 1890 *it was with exceeding difficulty that the bare necessaries of life could be procured for our patients, but when in that year the State Care Bill became a law this hospital, scarcely recognized by its sister institu-*

*tions, was suddenly galvanized into life, and under the beneficent provisions of that act, it received a new impetus which enabled it to rise rapidly to high rank in the State. Under the old law any thing was good enough for the broken down chronic cases it sheltered; under the new law the arbitrary distinction between acute and chronic insanity was legally annihilated, and the doors of the hospital were opened to all for whom admission was sought from the eight counties constituting the district assigned as its bailiwick.** Of this law the *American Journal of Insanity* for April, 1890, speaks in the following language: 'The State Care Bill, providing State care for all the dependent insane in the State of New York, became a law April 15, 1890. By signing this bill Governor Hill consummated one of the most signal triumphs ever achieved for humanity in the State of New York. All honor to those good men and women who have labored zealously day in and day out for the past three years to bring about this happy result. In the general rejoicing there will be no cavilling as to who is entitled to the lion's share of the credit, though all must recognize the important played in this great reform by the State Commission in Lunacy.' As was forecast by the *Journal's* prophetic utterance three years ago, hundreds of patients in this hospital are to-day living testimonials of the humanitarianism of this law."

The report of the trustees of this hospital for 1892 contains the following:

"Since the enactment of Chapter 126 of the Laws of 1890, popularly known as the State Care Act, the character of this institution has gradually undergone a change. The chronic asylum element has been steadily eliminated as the 'hospital idea' has gained stronger foothold. The wards have taken on a more cheerful aspect, and the patients have become more tractable under the humanizing influence of artistic furniture, pictures, rugs, carpets, curtains, and other draperies, all of which please the eye, cheer the mind, and tend to promote the recovery of the patient. Tablecloths have been introduced in all the dining-rooms, and better table ware is generally in use. The steel ceilings provided for by the last Legislature have been erected to the extent of thirty-two thousand feet, and they not only beautify the wards but give assurance of safety against falling masses of plaster and guarantee material protection against fire. . . . Large numbers of patients have found useful and beneficial occupation on the farm, and have exercised better self-control and enjoyed better health when thus employed than when idle." And again: "The State Commissioners in Lunacy have made frequent visits at the hospital during the year, and have made valuable suggestions regarding its management. It affords us pleasure to state that they

* In these quotations from the hospital reports the italics are the writer's.

have co-operated with the trustees and resident officers to the end that the institution might attain the highest degree of efficiency, and that the patients should derive the greatest possible benefit."

In this same report, the superintendent says: "Material progress has been made along the lines of hospital administration that now attract the greatest attention — viz., greater personal attention to the insane, more diversified occupation, and greater individual liberty." And again, in referring to the work of the State Commission in Lunacy, Superintendent Wagner says: "I should be derelict in my duty if I failed to make acknowledgment to the State Commission in Lunacy for advice and encouragement in carrying out the details of hospital organization and management. The recommendations of the commission during the past twelve months have been uniformly in the direction of a higher and better service in the hospitals of the State, and their interest has been keenly alive to all questions affecting the welfare of the patients, as has been evidenced by their frequent visits and inspections."

The superintendent of the St. Lawrence State Hospital, in his report for 1892, states as follows: "The service of the hospital is progressively improving, and particularly with respect to the immediate care of patients. Aside from the improvement resulting from experience in the care of the insane, the training of a fair proportion of our nurses and attendants systematically has had a marked influence upon the whole number by the example of their skilled service."

The report of the superintendent* of the Willard State Hospital for the year 1892 states as follows:

"A great deal of new furniture has been purchased and placed upon the wards, and a number of painters, carpenters, and plasterers have been kept busy repairing and beautifying various parts of the institution. The branch, or infirmary for women, has been renovated and decorated throughout, and it now presents a remarkably cheerful appearance. The lower floor of the main building, consisting of three wards each for men and women, is also in excellent condition. Among the articles of furniture purchased were five pianos, a music box, and a billiard table. Every building in which there are women has now a piano, while the women's department in the main building has two." And again: "Up to a year ago the normal capacity of the institution was considered to be nineteen hundred and thirty-eight, and, as we then had an average of two thousand and fifty patients, more than a hundred were compelled to sleep upon the floor, or in cots placed nightly in the corridors and removed during the

* Dr. Charles W. Pilgrim, now Superintendent of the Hudson River State Hospital.

day. But, by building the additions for the new dining-rooms and turning the abandoned ones into dormitories, by adding a bed here and there where space would permit, and by finding sleeping apartments off of the wards for several employees who had no ward duties to perform, the capacity has been gradually increased until now twenty-one hundred patients — a thousand men and eleven hundred women — can be comfortably cared for. And, paradoxical as it may seem, the capacity of the institution has been increased by one hunderd and sixty-two beds, although not a single ward has been added to the hospital. This entire increase, which would have cost the State $89,100 had a building been erected under the State Care Act at a per capita cost of $550, has been brought about by an expenditure of about $11,000 for new dining-rooms and about one-half that sum for interior alterations." This report further states that: "The night service in the main building has been considerably increased during the past year. *Where there was formerly but one night attendant on each side of the house there are now six.* This change was found necessary on account of the increase in the number of suicidal and feeble and filthy cases, and also by the desire to put all epileptics under night care. In consequence of this improvement in the night service, chambers have been done away with to a very great extent. On the convalescent wards and on the wards where there is night service, the room doors are left unlocked, thus giving the patients free access to the closets during the night. The advantage of discarding the objectionable and dangerous vessel is one which only a hospital physician can appreciate. . . . The proportion of night attendants to the average population is now one to sixty-six, whereas, a year ago, it was one to eighty-two. Fortunately, the time has passed when it was only thought necessary to keep the insane confined on the wards during the day and locked securely in their rooms at night. Among the many advances in asylum management during the past few years not the least has been the effort to make night care compare favorably with that of the day. . . . Upon the suggestion of Commissioner Brown, spray baths have been introduced in the infirmaries for both men and women. They have been found very satisfactory in every way, and far superior to the ordinary tub. By their use a great saving of water is effected, the bathing can be done in much less time, absolutely clean water for each patient is guaranteed, and, above all, the possibility of accident is entirely overcome. Many other improvements have taken place in regard to bathing, the most important being regular and systematic medical supervision. . . . The wards on the first floor on each side of the main building have been entirely renovated and refurnished, and they now compare favorably, in appearance and comfort, with the wards of any hospital in the State."

In the report of the Buffalo State Hospital for 1892 the managers state as follows: "The managers note with pleasure the efforts put forth to occupy and interest the patients. In every department employment is found for them — in the carpenter and paint shops, in the engine-house, in the bakery, in the kitchen, on the farm, at the barns, on the grounds, in the green-house, in the laundry, in the sewing room and in the school room. To this constant effort to find occupation for all who are able to do something we can but attribute much of the improvement and contentment of the inmates.

"It breaks up the monotony of institutional life, improves the health, occupies the mind to the exclusion of dwelling upon delusions, and distracts the attention of patients from their unhappy state. It also furnishes a vent for restlessness and much of the mischief idle hands find to do, not only among the inmates of asylums but in the outside world. *One is impressed by this in contrasting the walls of a hospital to-day with those of a few years since, when listlessness and idleness were the prevalent conditions of life in an asylum. The two important factors to which must be attributed in a large degree the improvement of our hospitals are occupation and night attendance. They have changed these institutions from the former bedlams to the modern hospitals for the insane.*"

And again: "The hospital buildings proper have not been neglected, but have received a due share of attention. The wards of the A buildings have been tastefully painted and decorated and are now more cheerful and homelike. New furniture has been supplied where needed, additional pictures placed on the walls, and carpets and rugs of our own manufacture on the floors. Attention has been given to the plumbing; vent pipes and traps have been put upon the fixtures, and in all of the A wards two new enameled tubs have been put in the bathrooms.

"One of the corridors connecting the new ward building with the center has been furnished with desks, and is utilized for the patient's school during the morning hours and in the afternoon for the attendants' training school.

"This is now a marked feature of the administration of the hospital, and from its early inception has received the support of the board of managers. They are convinced, by the more intelligent care given to patients and by the success which has attended the nurses who have gone out from the school and entered upon private work, of the great value of this school to the hospital and community.

"We have thus hastily passed in review some of the more important changes and improvements which have been made in the hospital, on the grounds and in the conduct of affairs, during the year. We feel assured also that the moral and medical treatment of patients have received their full share of attention from the

medical staff. They have been devoted to the duties respectively assigned to them and have labored successfully to elevate the general standard of care."

The Medical Superintendent of this hospital, in his report for the same year, states: "Under the new regulations regarding the commitment of the insane the number brought in restraint was still further diminished from preceding years. No restraint was used in the case of women patients, and only three men were brought in handcuffs, and four in wristlets."

Under the head of occupation, Superintendent Andrews reports: "During the year we have increased the facilities for the employment of patients by fitting up a general workshop in which are now concentrated the industries of the hospital: as the tailor and shoe shop, the making of brooms and brushes, the picking of hair and manufacturing of mattresses, the reseating of chairs, and upholstering. . . . All of the clothing for patients is made in the institution, and at less prices than were paid to the prisons for inferior articles. The shoemaker, by the assistance of patients, makes all of the shoes and slippers used by the men and women patients at a reduced cost."

In another part of this report, Dr. Andrews states: "*During the year we are able to report progress in the improved care given to patients. They have been better fed, better clothed, and made more comfortable and contented.* These results have been attained by the increased productiveness of the farm and garden, and by the manufacture of shoes and clothing to the measure of the individual patient, and by a more thorough individualization in treatment. Employment adapted to the ability of the patient and night attendance upon a larger number of the wards have lessened the amount of sleeping remedies given and has decreased the noise, violence, and destructiveness both by day and night. The change from the former condition is particularly noticeable on the disturbed wards, even to the casual observer, and much more so to those interested in the management. . . . The State Commissioners in Lunacy have made the visits required by law and inspected the conduct of the hospital in all of its departments. They also gave a hearing to all of the patients who desired it and made suggestions looking to the improvement of the service."

The superintendent of the Buffalo State Hospital, in his report for 1893, says: "There have been such changes in the treatment of insanity as have revolutionized our institutions and added immeasurably to the comfort of their inmates. These are epitomized in the change of designation, now so common, from asylum to hospital. All the institutions, by whatever name called, are conducted as places for the care and cure of the sick, rather than for the mere retention of the insane.

"The improvement in construction consists in the erection of hospital and infirmary wards where the sick and helpless can receive the care demanded for their condition; the building of amusement halls, of chapels detached from the mainstructures, of work rooms for the employment of patients, of associate dormitories and dining rooms, of homes for convalescents; cottages for farm hands, colonies, and lastly, as comprehending these various structures, the cottage plan system. All of these changes from the former conventional plan of institutions indicate readiness to adopt such new ideas as give promise of better care of patients."

And again: "The increase in the number of physicians and attendants employed in the care of patients, and the higher qualifications required by civil service examinations, and by the establishment of training schools in most of the State institutions are elements of progress of paramount importance in the conduct of asylums. . . . The extension of night service rendered possible by the erection of large associate dormitories, and by the increase in the number and the better training of nurses, has had the effect to reduce suicides and escapes, to correct the personal habits of the insane, and to remove many of the unpleasant features in their care. The wider range of employment and occupation which is now granted and urged upon our patients is a most potent factor in their treatment. The systematic use of amusements and recreation and the greater liberty allowed to patients must not be overlooked in recounting the forward movement of practical progress. . . . This condensed summary of progress in the construction and administration of hospitals for the insane points to the fact that the real bases of improvement have been, in the main, in the direction of individualization of treatment and in the greater confidence in patients and liberty granted to them. The whole history of the cure of the insane is a striking commentary on the advance of the world in civilization and humanity. . . . We are glad to report an advance in this direction by the action taken by the Commission in Lunacy in the State of New York, who recently issued a circular authorizing the managers of State hospitals to permit the introduction of students under proper restrictions to the wards of the various institutions. This furnished an opportunity for all the colleges to give to their students long desired instruction upon this subject. Favorable action was taken by the managers of the Buffalo State Hospital, and during the winter months clinical instruction was given on the wards to the students of both of the medical colleges of the city. This is a step of progress which it gives me pleasure to report."

The superintendent of the Utica State Hospital, in his report for 1892, in speaking of the new buildings erected under the State Care Act, says: "One can not commend too highly this new

provision for the feeble, demented insane of the chronic class. Associated as they are in large, lofty, airy day rooms and dormitories, with structural arrangements and conveniences adapted to their helpless condition, it is now possible to care for them with a minimum of inconvenience and the maximum of efficiency. . . . The infirmary has a separate day and night service. The work of the day attendants is taken up by those of the night, and pursued with the same careful regard to conditions of cleanliness, so that good habits have been created even in cases where the attempt at rescue from degradation seemed almost hopeless. As a concrete example of what has been done under the new régime, I may mention the striking fact that where formerly in the main building half of the number of women patients of the same class soiled as many as seventy five sheets per night, the number reported in the new building for women has frequently been naught."

This same report under the head of occupation says: "At the risk of appearing a faddist on the subject of occupation, I venture to say that in no respect has the general weal of our patients been more manifestly promoted than by the increased avenues of employment that have been thrown open to them." This report concludes with the following striking paragraph: "*We approach the new year with better facilities for the care of the insane than have ever before been ours. Ours will be the fault if we do not to the utmost avail ourselves of our opportunities to fulfill the promise and discover the potency of the epoch-making enactment of* 1890."

The report of the superintendent of this same hospital, for 1893, says: "The general health of the house has been good, and one may in reason claim that on the whole our people have been comfortably housed, fed, nursed, and clothed. As regards creature comforts generally, they have by no means fared ill."

And again, in referring to the improvements and betterments made to the buildings during the year: "All this new work of which you (the managers) make mention in your report, will vastly add to our facilities for carrying out the objects of the institution and promoting its efficiency."

The managers of the St. Lawrence State Hospital in their report for 1893 state: "This hospital presents a history of steady and unchecked growth since its creation by statute, and the past year contrasts favorably with previous ones in this respect."

The superintendent of this hospital, in his report for the same year, referring to the completion of a new group of buildings, says: "It stands now an ideal asylum building for the care of four hundred insane women of the class not strictly requiring active hospital treatment or infirmary care. There can be no doubt that it will fulfill its purpose in an admirable manner."

The superintendent of the Hudson River State Hospital in his annual report for 1893, in reference to increasing the capacity of the building by utilizing the sitting rooms as dormitories, says: "The use of the three sitting rooms as dormitories has worked no hardship to the patients, as there is ample day space in the large corridors and double alcoves. In fact, the change has resulted in an improvement in the appearance of the corridors, for they have been made more cheerful by the addition of furniture and pictures. But the greatest advantage has been in the improvement in the night care of the helpless and filthy, which is made practicable by the fact that the new dormitories are in close proximity to the water section. The use of the objectionable chamber vessel is avoided and habits of cleanliness are cultivated by the regular and systematic attendance of the night nurses, which only such an arrangement can make possible. . . . *Thus without undue crowding, the permanent capacity of the hospital has been increased by three hundred and two beds.* A building to accommodate a like number under the State care allowance would have cost the sum of $166,000. The relief which was thus obtained was very great, and was appreciated by officers, nurses, and patients. . . . The pictures and furniture purchased during the past year have added greatly to the appearance of some of the wards, but we have only made a beginning and can not keep on without more funds." And again: "The several members of the State Commission in Lunacy have made frequent official visits during the past six months, and I am indebted to them for many practical suggestions in regard to the details of hospital management. Their visits and inspections are a spur to every medical officer and to the nurses as well. When it is remembered that they are constantly going from one hospital to another, gathering the best points in the management of each, it is evident that the recommendations which they make should tend to greater efficiency in the management of all."

The managers of the Hudson River State Hospital, in their report to the Legislature for 1893, state: "With the additional beds that have been provided the capacity of the hospital is now 1,400—750 in the men's department and 650 in the department for women."

In view of the allegation recently made that the policy of the of the commission in lunacy has resulted in seriously overcrowding the Hudson River State Hospital, it is proper to state in connection with this subject that the present number of inmates of the hospital (February 1, 1894) is 710 men and 635 women, a total of 1,345 patients, or 55 less than the capacity of the hospital as certified to the commission by the managers.

The managers of the Rochester State Hospital, in their annual report to the State Commission in Lunacy for 1893, say: "The unsatisfactory condition of the buildings, noted in our first annual report, has been removed to a considerable extent, and it has been demonstrated that the thorough renovation recommended at that time can be carried out successfully and economically.

"In accordance with plans and specifications prepared by J. Foster Warner, architect, in conformity with the recommendations of the State Commission in Lunacy and architect I. G. Perry, an administrative department and a new department for male patients have been constructed, within the amount appropriated therefor. *The crowding which we so strongly deprecated in former reports is thereby relieved and the comfort of the patients largely enhanced.*"

In this same report the superintendent of the hospital says: "Through the liberality of the State Legislature the managers of the Rochester State Hospital have been enabled to build and furnish, at a per capita cost of $550, four large, well-lighted, cheerful wards with dormitory and lavatory accommodations, and an administrative building, with comfortable apartments and convenient offices.

"A large embayed extension has been built in connection with wards four, six and eight in the female department, which adds much to their attractiveness. Verandas, that command a wide and beautiful view, have also been added to these wards."

Surely there is nothing in the foregoing extracts from the reports of the State hospitals which would justify the assertion recently made that these institutions "are rapidly deteriorating as curative institutions."

It has also recently been asserted that the State hospitals are being greatly overcrowded. It should be borne in mind in connection with this subject that there is scarcely a public hospital or asylum for the insane in this or in any other country whose annual reports do not from time to time teem with complaints of overcrowding, and whose superintendents do not frequently cry out for relief in this matter. Certainly this has been true of all hospitals and asylums in the State of New York for the past thirty years, until overcrowding came to be regarded as a normal condition. When the Lunacy Commission began its official work it found, in the Utica State Hospital, patients uncomfortably housed in an abandoned chapel, in the fourth story of the administration building, also in the barren attic of an outbuilding. At the Middletown State Hospital it found a considerable number of patients crowded into the attic

of the administration building, while at the same time there were instances of private patients who were provided with a suite of rooms and two private attendants, each of whom occupied single rooms. In one of the buildings of the Binghamton State Hospital nearly a hundred patients of the most disturbed and violent class were crowded into a dark, dilapidated, and unwholesome basement, which, as regards noise and violence, was the nearest approach to the ideal "bedlam" that the writer has ever seen in this or any other State or country. Suffice it to say that the use of these places as receptacles for insane patients has, in each instance, been abandoned, and their former occupants are now all comfortably housed in suitable and proper quarters. And this, notwithstanding the fact that, in obedience to the duty imposed upon it by the State Care Act, the commission has removed from the poorhouses, where they were in a condition of wretchedness, squalor and neglect, in round numbers, two thousand patients, to the custody of the State, where they are now comfortably housed, fed, and clad, and provided with proper medical supervision and care, thus accomplishing, within a period of three years, the work that all efforts in that direction during the past thirty years had failed to accomplish. The work of rapidly transferring to the care of the State this large number of insane poor necessarily involved some temporary embarrassment and discomfort to the State hospitals, but it is gratifying to say that, except in two or three instances, the officials of these hospitals have cheerfully cooperated with the commission in carrying out this delicate and difficult duty, realizing that the discomfort was a necessary incident to the change of methods and would rapidly disappear when the transition state was passed.

Regarding the statement which has recently been put forth, that there is a growing sentiment averse to the Lunacy Commission, and that the whole procedure of the commission is tending to convert the State hospitals into immense pauper establishments; that these institutions are rapidly deteriorating as curative establishments, owing to the lowering of the standard of care and overcrowding of them by the commission, the statement is not sustained by the facts. On the contrary, since its creation down to the present time, the commission has constantly had the confidence and support of the Chief Executive of the State, Comptroller, and substantially of all the members of both houses of

the Legislature, regardless of party, while its work has been officially commended by most of the hospital managers and by a large majority of the medical officers of both the public and private institutions for the insane as well as by the State Charities Aid Association, whose report on the dependent insane and the administration of the laws relating thereto, for 1893, contains the following: "It is, however, fully aware that good laws, badly administered, often fail of their purpose, and it is, therefore, with pleasure that we now place on record our belief that these laws have been ably and fearlessly administered by the State Commission in Lunacy."

By the act of 1893, which provides for the support of the dependent insane by the State, and which went into effect on October 1st last, the Legislature put upon the Commission in Lunacy the responsibility of a general supervision of the expenditures of the State hospitals. The law requires the hospital authorities to present to the commission each month an itemized estimate of expenses for the coming month. These estimates the commission is required to scrutinize, and is empowered to revise, as in its judgment seems best, both as regards quantities, qualities, and prices of supplies, the object of the law being to place upon some central and independent body the duty of regulating the expenditures of the large sums of money which, under the State Care Act, require to be annually appropriated by the Legislature for the care and treatment of the insane.

The commission, with a full sense of its duty to the welfare and comfort of the dependent insane on the one hand, and of its responsibility to the taxpayers on the other, entered upon the work of passing on the monthly estimates with the beginning of the fiscal year, October 1, 1893. This involved the originating and putting into practical operation of an entirely new financial system for the State hospitals, and was, of course, a radical departure from the old methods of expenditure and of accounts, the funds received by the State hospitals from counties, private patients and from other sources having hitherto been expended by the superintendents of these institutions in their discretion, subject only to approval and audit by the local boards or managers.

Under the former system, which had been in operation for many years, many abuses naturally grew up, and it is a fact that in at least three of the hospitals great extravagances have existed.

It should be said, however, that this statement would not apply to all of the State hospitals, as certain of them are believed to be very carefully conducted as regards their expenditures, as well as in the matter of discipline and the medical care and treatment of their inmates, so that any general or sweeping criticism unfavorable to the State hospitals as a whole would be manifestly unjust. The recent investigation of the management of the Hudson River State Hospital revealed, as the printed testimony shows, a most shocking state of affairs. The per capita cost of maintenance in that institution was shown to have been much higher than that of any other State hospital, while the rate of recovery and standard of care generally was far below that of the other hospitals. The institution was disordered and demoralized, and great extravagance and looseness in methods of expenditures and in the auditing of bills was found to exist. These facts were substantially admitted by several members of the board of managers, who professed ignorance of them on the ground of inattention on their part.

The commission, since October 1, 1893, when it began the work of supervising the expenditures of the State hospitals, has endeavored to curtail expenses by lopping off what it regarded as clearly improper and unnecessary items of expense, and also by disallowing certain other expenditures which, in its judgment, could not properly be charged to the maintenance fund. In numerous instances, however, the commission has increased the sum of the estimates by insisting on the purchase of a better quality of supplies than was called for by certain of the hospitals, notably in the matter of tea, coffee, flour, meats, stimulants, and clothing, and blankets. In its efforts to reduce the financial system of these hospitals to a business basis and put a proper check upon expenditures, it was inevitable that the commission should encounter criticism and even hostility on the part of those whose pet methods it had interfered with, not to speak of the ill will of certain local tradesmen whose profits were doubtless largely diminished. It would also be surprising if, in establishing a financial system of such vast magnitude and immense detail, and involving such widespread interests, the commission should not have made mistakes in minor matters and should have succeeded in completely avoiding friction with hospital authorities, especially in the organizing stage of the new system. The superintendent

of the Utica State Hospital, in his report already referred to, says: "The transition from the old order of things to the new will not be accomplished without friction. Soon, however, the machinery must adjust itself to the new requirements. And surely one may safely leave the future to care for itself, if, in meeting the new problems that will arise, we pause to ask ourselves the simple question whether the end we have in view is the application to our everyday work among, and in behalf of, the insane of the humane principle that underlies the State Care Act, and which alone made its passage possible."

It should be borne in mind that the commission does not originate the estimates, but simply revises and approves them, and that superintendents are free to insert in their estimates any proper item of expenditure. Neither does the commission disburse the funds for these expenditures, as has been alleged, nor does it direct where these expenditures shall be made. It has, however, endeavored to enforce the policy of having staple articles of food supply for the hospitals, such as flour, sugar, tea, coffee, coal, etc., purchased in bulk for all the hospitals, and at wholesale rates, the purchases being negotiated for by a committee of the superintendents themselves, and in this it believes it will be sustained by the business sense of the community and by the medical profession as well. Nor is the commission interested in securing the trade of these hospitals to any particular dealers or class, and any statements to the contrary are absolutely and unqualifiedly false. Furthermore, the writer unhesitatingly asserts that the true explanation of the animus toward the commission which is now being manifested by two or three of the hospital superintendents and their managers is to be found in the fact that the new system of supervision of expenditures by an independent body deters these superintendents from inserting in their estimates items for the purchase of grossly improper and extravagant articles for their own personal use, purchases which, under the former system, they have been free to make without let or hindrance.

Vouchers of at least three of these hospitals on file in the State Comptroller's office show a most lavish expenditure for themselves, and the entertainment of managers and friends, while at the same time supplying patients with a low grade of food supplies, including the quality of beef known as "chucks," and "necks" at four

cents per pound, fish at two and one-half to three cents per pound, also inferior adulterated foods, especially tea and coffee.

The commissioners realize that the people of the State are abundantly able and willing to provide every thing that is essential for the proper care and treatment of its dependent insane; and they have determined that these unfortunates shall not be denied of these essentials; but they would be recreant to their trust and to their oath of office if they failed to promptly check to the full extent of their power any tendency which they may discover in the direction of extravagance, improper expenditure, or misapplication of the public funds.

In concluding this branch of the subject it may be said that a careful estimate of the expenditures of the State hospitals under the new system, including every thing that is proper and necessary to be supplied out of public funds, will show that a large annual saving to the taxpayers of the State, aggregating at least $250,000, will undoubtedly be effected.

Respecting the allegation which has recently been put forth that the commission has prohibited the use of tobacco in the State hospitals, it may be said: The commission has made no order forbidding the use of tobacco in these institutions. It has simply disallowed the items for that article in the hospital estimates. So far as action by the commission is concerned, the inmates of the State hospitals are not prohibited from using tobacco, except at the expense of the State. It is a fact that a large proportion of these patients obtain tobacco from their friends, from employees, and from visitors. In fact, it is practically next to impossible to abolish the use of tobacco in hospitals for the insane. The action of the commission has merely tended to minimize the abuse of tobacco chewing in State hospitals, which was a very serious one, as many patients without sufficient mentality to exercise a rational judgment in the use of tobacco, have simply saturated themselves with it, and cases of tobacco poisoning are not infrequent. Repeated instances have occurred of patients drinking the tobacco expectoration from the cuspidors and extracting the quids of tobacco from these receptacles and chewing the same. Furthermore, observation has shown that many patients have acquired the tobacco-chewing habit after admission to the hospital, and certainly it is a serious reflection upon the management of a hospital for the insane to have patients

acquire a habit of this kind while in their custody and care. Instances of young adults who have become addicted to tobacco chewing after coming to the hospitals are very common, and the proportion of tobacco chewers to the population in asylums is very greatly in excess of that in the sane population outside, so far as it can be approximately determined. Moreover, experience has shown that wherever the practice of issuing tobacco to patients in hospitals for the insane has been discontinued, it has been attended with most satisfactory results, as attested by the testimony of Dr. Cronyn, president of the board of managers of the Buffalo State Hospital, who abolished the use of tobacco in an asylum for the insane of which he was formerly superintendent; of Dr. A. E. Macdonald, the general superintendent of the New York city asylums for the insane, in which the use of tobacco was abolished in 1874 and has never been renewed; and of the writer, when superintendent of the Auburn State Asylum, in which the practice of furnishing tobacco was abolished in 1880.

It would be easy to show that the unrestricted use of tobacco, which has heretofore obtained in several of the State hospitals, has resulted in marked demoralization and filth in the wards, and in numerous cases has directly aggravated mental conditions, especially those of an irritable form, tobacco being a direct irritant to the heart.

Regarding the use of tobacco in the New York city asylums for the insane, Dr. A. E. Macdonald, in a letter under date of November 6, 1893, says: "In answer to the inquiry of your commission regarding the use of tobacco in the city asylums, I beg to say that such use was discontinued shortly after my appointment to the City Asylum, Ward's Island, in the fall of 1874. I found, upon assuming duty there, that tobacco was issued indiscriminately by the warden, matron, and other lay officers, without any reference to the physicians; that its use was either for the purpose of securing special work, or in order to pacify patients who threatened disturbance or violence, unless tobacco was given to them.

"Much turbulence and quarreling among the patients was caused by this distribution — stronger patients forcing weaker to give them their share of the distribution — and in some instances serious trouble was caused by tobacco poisoning through the swallowing of the tobacco by demented patients; at the same time the effect upon the discipline and cleanliness of the asylum was markedly unfavorable.

"The abandonment of the use of tobacco has not resulted unfavorably in my experience; on the contrary, there has been a

decided improvement in the condition of the patients and of the buildings.

"I do not think that the deprivation of tobacco causes any greater distress to individual patients than the deprivation of liquor or other indulgences to which they have been accustomed, and I see no good reason for its general use or distribution.

"If tobacco is to be used in all the asylums, I should favor its use only by convalescent or chronic cases, who might be rewarded for work by being permitted to smoke in places and at times specially designated for the purpose. I should not advocate its being issued indiscriminately or for use otherwise."

Dr. H. G. Matzinger, of the Buffalo State Hospital, writes as follows regarding the use of tobacco in that institution: "During your last visit here you requested me to write you my experience with the use of tobacco among insane patients, and my opinion of the effect of its discontinuance.

"In nine cases out of ten the chewing habit led to uncleanliness of greater or less degree, according to the personal habits of the patient. His face and clothing always bore ample evidence of its use, often to a nauseating degree, and his idle hours were spent in filling spittoons, from which it was not uncommon to see other patients take the quids and chew them.

"In many cases the habit of chewing was acquired by begging a sufficient quantity, and so the demand grew, and the friends were importuned to bring it, if refused by the physician. When it was the custom to reward some patients for work or to induce them to work by offering tobacco, others soon discovered the fact and frequently objected to doing anything unless they received their share even though they never used it. It was then traded for other things with other patients, or workmen on the grounds.

"In two cases which I recall now a serious form of tobacco poisoning occurred. One a negro, employed in the engine-room, has had several periods of quite prolonged illness following the immoderate use of chewing tobacco. He exercises no discretion whatever in its use, has periods of irritability when it is difficult to keep him continuously at work, and at such times he was given a larger supply by the fireman, in order that he might not be short of help.

"The other, a mild dement, was issued his ordinary supply at the end of the week and apparently devoured all of it within a few hours afterward. He was brought to the ward, and soon passed into a condition approaching collapse. He was cold, pale, tremulous, and almost pulseless. On inquiry, it was found that he had been eating a large amount of tobacco. He was given a dose of oil and soon passed a black mass of macerated leaves, filling half the vessel. After this the patient gradually recovered his ordinary condition.

"It was quite a common occurrence to have patients suffer from indigestion and headache, due directly to the use of tobacco in quantities to which they were not accustomed.

"On the whole, I do not recall that smoking caused any trouble. It was always done under supervision, and was not allowed on any part of the grounds or in the buildings, except in the smoking room of the cottage. It proved a great source of comfort to many aged people and patients who had been accustomed to it for many years.

"When the order of the superintendent to discontinue the use of tobacco, which resulted from an informal discussion of the subject between yourself and the medical officers of the hospital on the occasion of your last official visit, was first put into force, there was considerable objection for a few days, but since then we have experienced no trouble of any kind. Patients are as industrious as before, and no delcterious result has been observed.

"All inquiries on the part of patients and their friends in relation to the use of tobacco are met satisfactorily, and finally by the statement that it is not allowed. The interdiction of the general use of tobacco in this hospital has, far from causing annoying unpleasantness, been most gratifying, removing a great source of personal uncleanliness, of dissatisfaction, and of possible injury to health."

Having thus outlined the principal points which have presented themselves in relation to the practical workings of recent legislation for the insane in the State of New York, and having cited from official reports of the hospital managers and superintendents ample proofs of the main position herein taken, namely, that the present laws respecting the insane, as administered, have resulted in marked improvement in the condition, equipment, and management of the hospitals, and in the general well-being of their inmates, while at the same time effecting important economies in expenditure of the State's money, the writer feels that the commission in lunacy may justly maintain that, in their administration of these laws, they have been actuated solely by a desire to promote the welfare and comfort of the State's insane, and, as one of the most efficient means to this end, they have steadily aimed, both individually and collectively, to have the best features in each hospital's work adopted by all the others.

In conclusion, it is gratifying to be able to state that, in its efforts in this direction, the commission has had the cordial cooperation of a large majority of the superintendents and medical officers generally, to whom much credit is due for the measure of success that has been attained.

XLIV. Recent Methods of Gastrostomy for Stricture of the Œsophagus.

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The surgery of the gastro-intestinal tract has made wonderful progress within the last fifteen years. Especially that of the stomach has been rapidly developed. And this, I believe, for the reason that not only diseases of the stomach proper require operations on the organ, but also strictures of the œsophagus, at least in the majority of cases. In patients who suffer from a slowly but surely increasing cicatricial or cancerous stricture of the œsophagus the surgeon is called upon to perform gastrostomy — to establish a gastric fistula.

In former years every doctor who had a case of stricture of the œsophagus under his care dreaded to give his patient the advice to have the stomach stitched to the abdominal wall and opened. He generally sent the poor sufferer to the surgeon at the last possible moment, when even fluids had refused to pass the œsophagus — when rectal alimentation had become necessary. And why did the physician do this? Why did he temporize as long as possible? Why did the surgeon, too, hesitate to perform the operation? Because the doctor had generally seen his patient die quicker with than without the operation; because, in most cases, the food which had been poured into the stomach through the tube in the artificial opening oozed out or even flowed back along the tube, so that not enough was retained to nourish the patient, the oozing, moreover, producing a troublesome painful eczema in the epigastric region; because, in one word, it had formerly been impossible to keep the walls of the fistula tightly adjusted to the tube.

This formerly well-founded reason for delay luckily does not hold good any longer. It can not now be said too often and emphasized too much, for the sake of all the poor subjects afflicted with stenosis of the œsophagus, that there are at present "a number of methods" at the surgeon's disposal which enable him to prevent regurgitation from a gastric fistula. Thus the patient will certainly not die any more from starvation.

These recent methods have put the indication for gastrostomy for stricture of the œsophagus on an entirely different basis.

Permit me to call your attention for a moment to the old method of performing gastrostomy, generally called the "method of Fenger."(1)

An incision three inches long is made parallel with the border of the left ribs from near the median line down to the eighth cartilage. The abdominal wall, with the peritoneum, is divided in the same line. An area of the anterior wall of the stomach about one and one-half inches long and one inch wide is attached by sutures (about 15-20) to the cut surface of the abdominal parietes. Loose tamponade. Rectal alimentation. Three to five days later the dressing is removed and the stomach incised with a knife, between two slings, which had been put in at the time of the operation in order to identify the exact position for the opening; the latter was made very small. Hagedorn proposed to use Paquelin's thermo-cautery for making the puncture. Only if the patient be very low the gastric fistula was established at once.

Case I. — Man, aged forty-two years. Malignant stricture of the œsophagus near cardia. Only fluids pass. Marked emaciation. November 7, 1889, gastrostomy, first part, at the German Hospital; Fenger's incision. Two days later incision with Paquelin, just large enough to give entrance to a small-sized drainage-tube. Regular feeding. A few days later beginning leakage. Tube exchanged for larger size. Soon renewed regurgitation; mechanical devices fail to close the fistula water-tight; progressive eczema of surrounding skin in spite of proper treatment with pastes, etc.; increasing emaciation. Death from exhaustion and right croupous pneumonia, November 20th.

Case II. — Man, aged sixty years. Cancerous stenosis of œsophagus near cardia. October 16, 1890, gastrostomy, first part, Fenger's incision. October 18th, stomach opened with Paquelin. Also in this case the same annoying consequences set in. Patient slowly lost ground. He died November 16th. Post-mortem showed a croupous pneumonia of the right upper lobe.

This primitive method of gastrostomy has been the only one in use for forty years. Owing to the generally experienced ill success of this operation, as far as the functional result was concerned, methods of surgical interference for the sake of relieving

(1) The operation was originally proposed by Chr. A. Egeberg, a Norwegian military surgeon in 1837; published in 1841. Charles E. Sédillot, of Paris, later of Strasbourg, gave it its name and its indications in 1846, and performed the first gastrostomy on the human subject at the Strasbourg Clinic, November 13, 1849. The operation was later modified in its details by C. E. F. Fenger, of Copenhagen, in 1853. The first successful case is that of Sydney Jones, of London, in 1875. The first case on record in America for obstruction of the œsophagus was performed by F. F. Maury, of Philadelphia, June 25, 1869; the first case in New York by A. Jacobi, in 1874.

the troubles of an œsophageal stenosis fell into great disrepute.(1) To-day Fenger's method, as originally proposed, is practically abandoned.(2)

It will be noticed that the great objection to Fenger's method was the liability to leakage from the fistula around the tube. Four methods have been recently devised to overcome this difficulty, the methods of Von Hacker, of Hahn, of Witzel, and of Ssabanejew-Frank.

1. *The method of Von Hacker.*(3) In this the operator makes the fistula through the left rectus muscle, so as to secure a sphincteric action from the tonic contraction of its fibres around the extended portion of the stomach wall.

I shall describe the operation as I used to perform it. Longitudinal incision three inches long over the left rectus muscle, beginning about one inch below the border of the left ribs, and the same distance to the left of the mediar ine. Blunt dissection of the belly of the muscle — best with the handle of the knife.(4) Opening of peritoneal cavity. A fold of the anterior wall of the stomach as near to the fundus as possible is grasped with two fingers, pulled forward out of the wound, and

(1) A multitude of mechanical devices have been brought out in the course of the years to avoid leaking. I shall mention a few only. Von Langenbeck made use of a small rubber air-pillow with a central opening. Through it the tube, which was closed by a stop-cock, passed into the stomach. The pillow was covered and held down by a piece of lead perforated in the middle and held in place by a circular elastic band. Lannelongue applied an hour-glass-shaped obturator, which could be blown up with air and was passed in its center by the stomach-tube. Kappeler's assistant, Huber, constructed the following apparatus (Deutsche Zeitschr. f. Chirurgie, vol. XVII, p. 132): A tube made of horn, with an outward curve at its lower end, is split lengthwise, so that the two halves can be separately introduced, and, when in place, readjusted. A wide rubber ring covers the lower trumpet-like (intra-gastric) end. It holds the tube firmly in place and avoids pressure. The upper straight part of the divided tube carries a worm and a screw-nut on its outer side. Where it emerges from the abdominal parietes it is surrounded by a small rubber air-pillow, which is held down by a metal plate screwed down upon it. Over the upper end the feeding-tube is slipped and closed by a clamp. In one of Kappeler's cases this obturator firmly closed a wide gastric fistula. Lately a glass tube of special construction has been recommended from Mikulicz's clinic. (Berl. klin. Wochenschr., 1893, No. 1.)

(2) Three years ago Terrier, of Paris, stated that he was able to avoid the egress of the contents of the stomach by making a very small incision and only introducing a tube for feeding purposes. At other times it is kept out. (Revue de Chirurgie, 1891, No. 4.) Lately T. Nicolaysen, of Christiania, similarly modified the old method. He lifts up a square-inch portion of the stomach wall to the parietes by 4-6 mattress sutures. They are tied over pieces of tubing after an area of the stomach of not larger than a bean's size has been stitched to the parietal peritoneum and muscles at the middle of the wound. The external wound is closed by deep and superficial sutures. Either at once or after twelve to twenty-four hours the stomach is incised. The hole is made small so as to let pass a Nélaton catheter of medium size. This is kept in for three days and then removed. It is temporarily reintroduced for feeding purposes. In two cases the functional result of the direct — not oblique — fistula was perfect. If desired it can be bluntly dilated. (Forhandl. i det Norske med. Pelskab. Report in Centralbl. f. Chirurgie, 1894, N. 4, p. 83.)

(3) V. Hacker : "Ueber die Verwendung der Musculus rectus abdominis zum Verschluss der künstlichen Magenfistel," Wien. med. Wochenschr, 1886, N. 31 und 32 und "Ueber die Erfolge der Gastrostomien und Sphincterbildung aus dem Musculus rectus abdominis, "Wiener. klin. Wochenschr., 1890, N. 30 und 37. C. Strunz: "Ueber d. weitere Fälle von Gastrostomie mit Sphincterbildung aus dem Musculus rectus abdominis," V. Hacker, Chirurgische Beiträge aus dem Erzherzogin-Sophien Spital, Wien, 1892. Rep. in Centralbl. f. Chirurgie, 1893 No. 9, p. 208.

(4) Girard suggested that some of the fibres of the rectus muscle should be crossed, in order to have a still more pronounced sphincteric action. (Correspondenzblatt f. Schweizer Aerzte November 11, 1888.) According to other surgeons' and my own experience this is an unnecessary addition.

at once secured with two slings of thin silk which embrace the serous and mucous coats of the organ. They are held by the assistants in the middle of the abdominal wound. These slings are left in the stomach, and will serve as a guide for the subsequent incision. Care is taken to let them pierce the stomach on a line parallel to its longitudinal axis. Then the incision between them will run parallel to the branches of the gastro-epiploic arteries, thus reducing hemorrhage. This point can be of some value if the stomach could not be lifted up well and the opening had to be established near the pylorus. Now a silkworm-gut suture is passed near the upper border of the peritoneal wound through the entire thickness of the abdominal wall, including the skin, catching the stomach on its way. It is not tied. The ends are clamped by an artery forceps. The same is done below, the stomach wall having been well stretched by the left hand of the operator, to be sure that it will afterward easily adapt itself to the peritoneum without producing folds. Then a number of silk sutures are put in on both sides — about eight or ten in all. They pass the serous aud muscular coats of the stomach and embrace the entire thickness of the abdominal wall, but emerge in the subcutaneous tissue. They do not penetrate the skin. (A hook-shaped needle will be found most convenient for the purpose.) These sutures are tied at once. Then the silkworm-gut sutures are tied and the angles of the wound closed by a stitch or two. The middle of the wound, about one inch long, is left open and loosely packed with gauze. Dressing of the closed portion of the wound with iodoform gauze and collodion. The patient may partake of liquid diet if he be able to swallow; if not, rectal alimentation is resorted to.

Two or three days later the stomach is opened. Within this time the wound has healed by primary union and granulation commenced in that part of it which had been packed. The stomach juice coming in contact with the wound now will not disturb healing. This is, no doubt, an important point. Von Hacker specially emphasizes it. The fistula to be made in the middle of the incision will be far more satisfactory if the rest of the wound be healed by primary union. For this reason the operation at two times is preferable, but in greatly reduced patients we will, of course, try to give immediate relief. The incision is always made with the knife, and as small as possible, just large enough to admit the smallest-sized drainage-tube.

Cocainization of the stomach wall is unnecessary. The patient does not experience any pain. Generally two small arteries spurt. They are clamped and tied. (Paquelin cautery is never used for opening the stomach. With it an eschar is made, which when pushed off rapidly enlarges the hole.) A long tube is now inserted *à frottement*, and about six inches of its external extremity left projecting beyond the abdominal wall. It is closed by a stop-cock. Then the surrounding wound is repacked. Now the two silk slings are removed. The tube is held in place by slipping over it down to the abdominal wall a short piece of the next larger size of tubing armed with two safety-pins. A piece of gauze, partially incised, is pushed underneath the pins, another one with a small centre hole on top. Both are held in place by the rubber adhesive plaster straps, as used for laparotomy, or by a square piece of muslin with a small centre hole and one or two long pieces of tape on either side, which pass around the body and are tied by the patient in front.(1) Soon an ointment dressing is applied. Ten days after the operation the patient gets up.

Von Hacker's method is no doubt a very good one. If properly carried out, leakage very rarely sets in. If it does, the tube must be exchanged for one of larger size. If the largest in the market has been put in and yet some of the food regurgitates at times, the tube should be removed during sleep, the stomach meanwhile being kept empty; on the following day it is replaced, and the fit will be perfect, as before. Von Hacker needed in his cases a special stomach canula with double rubber balloon (the Von Hacker-Scheimpflug canula.)(2) All my patients have worn a simple rubber tube in the fistula. It fully occluded the opening. In none of these cases eczema set in. According to my observations the small incised wound in the stomach first enlarges rather quickly; its borders are probably digested by the gastric juice. A tube three times as large as the first can be easily put in after about eight days. But soon as it appeared with advancing cicatrization the limit was reached. No larger sized tube is needed. The fistula becomes and remains patent. In one of my cases I saw the patient shortly before death — four months after the operation. He had a distressing, continuous cough, and

(1) Other authors keep a short tube in place by closing it with a clamp just in front of the abdominal wall, which is then held down by the dressing. I prefer the method described and the long tube. The introduction of food through the tube can be done further from the wound without disturbing the dressing.

(2) Max Scheimpflug: "Ueber eine neue Balloncanaele für künstliche Magenfisteln," Wiener klin. Wochenschrift, 1888, Nos. 24 and 25.

expectorated, rather vomited, large masses of the ulcerating neoplasm. I satisfied myself that in the severest paroxysms of cough not a drop oozed out alongside the tube.

I have described the technique of this operation and its after-treatment at some length, because it gave me satisfactory results, if carried out in the way described. It is a slight modification of that originally devised by Von Hacker. The latter opens the stomach by a somewhat larger incision, so that a tube of 6 to 8 mm. diameter can be put in. He cuts down to a needle, which is thrust through a fold of the stomach at the first stage of the operation, embracing the whole thickness of the two walls of the organ, mucous membrane included, and stitches the latter to the skin. I believe that especially the last-mentioned point is not preferable. It seems to me that the possibility of leaking is lessened if the stomach wall be left *in situ* after the incision, and not be extended.

Six patients with cancerous stricture of the œsophagus, all males, have been operated by me according to this method. One died in five days after the operation, in consequence of extreme weakness; two succumbed to a perforation of the growth into the trachea on the tenth and twelfth days respectively after the operation; one lived three, one four and a half, one eight and a half months after the operation. In every one of the cases the functional result was good.

Case I.—G. W., aged seventy years and six months. Admitted to German Hospital, April 4, 1891. Increasing symptoms of stenosis of œsophagus for last ten months. Fluids pass yet. Sounding reveals an impermeable stricture of the cardiac end of the œsophagus. April 6th, gastrostomy, first part. Operation performed as above described. Fluids by mouth allowed. April 8th, primary union of abdominal wound; stomach incised with knife; opening just admits the smallest size drainage-tube; fistula closes water-tight from the beginning. April 20th, largest size tube put in; no leaking. April 27th, discharged; weight, 117 pounds. Patient was presented to the New York Surgical Society on May 13th (*N. Y. Med. Journal*, December 5, 1891, p. 637), and to the Section on General Surgery of the Academy on October 12, 1891 (*N. Y. Med. Record*, October 24, 1891, p. 517). Had then gained considerably in weight; able to do light work. November 11th, fistula closed tightly around tube; patient swallows at times bread with butter; weight, 135 pounds. In the following weeks intermittent leakage. Whenever it occurred, stomach was kept empty toward evening and tube left out during the night. On the following morning the fit was again perfect. On December 15, 1891, pneumonia set in, to which patient succumbed in three days (Isabella Home), December 18th, eight and a half months after the operation.

Case II.— N. N., aged forty-six; entered the Country Branch of the New York Skin and Cancer Hospital, February 9, 1892. Marked symptoms of stenosed œsophagus. February 11th, gastrostomy, first part; feeding through the mouth on liquids, with rectal alimentation. February 14th, stomach opened and tube introduced; patient in good condition. He remained so for nine days, when suddenly symptoms of perforation of the growth into the trachea set in, to which the patient succumbed within twenty-four hours.

Case III.— A. M., aged forty-seven; admitted to German Hospital, October 6, 1892. Difficulty in swallowing for the last eight months. Within the last weeks had to be satisfied with fluid diet only — even this is often regurgitated; intermittent intense pain along sternum and dorsal spine; pulse weak and rapid; lost about fifty pounds; impassable stricture twelve and a half inches behind teeth. Rectal alimentation and subcutaneous stimulation preparatory to the operation. October 8th, gastrostomy, first part, working with A. C. E. mixture. Two days later stomach opened; external wound had healed by primary union; abdomen flat, painless; additional careful feeding through tube. October 12th, pulse not improved; patient very weak. October 13th, died under symptoms of heart failure.

Case IV.— O. Sp., M. D., aged fifty-seven; increasing trouble in deglutition for nine months; lived on fluids for last six months — within last days these cannot pass; at times lancinating pains through sternum and spinal column; extreme emaciation; aphony; laryngoscope reveals paralysis of left vocal cord; infiltrated hard glands in the left supra-clavicular region. Sounding omitted on account of previous repeated hæmatemesis. Admitted to German Hospital, January 7, 1893. Gastrostomy, first part morphine-chloroform narcosis. January 9th, stomach incised; smaller size tube put in. January 12th, patient able to drink. Ten days later the largest size passed; no leaking; careful feeding; patient up and about. February 1st, discharged. Abdominal wall closed firmly around tube. Patient was presented before the Scientific Society of German Physicians, March 24, 1893 (*N. Y. Med. and Monatsschrift*, 1893, No. 2, p. 450). General condition satisfactory. In the second half of April he began to cough; for more than a week he expectorated, without accompanying hemorrhage, large masses of the ulcerating neoplasm, thereby regaining the use of his voice and temporary ability of deglutition. Patient was regularly seen by me during this time. He had distressing paroxysms of cough, but at no time any loss of gastric juice alongside the tube. The sphincteric action of the rectus muscle was perfect. Patient died of marasmus May 20, 1893, four and a half months after the operation.

Case V.— A. S., aged forty-three; admitted to German Hospital, January 5, 1893. For one-half year increasing symptoms of strictured œsophagus; lately liquid diet only; pain in region of cardia, where solid food is arrested; cachexia. January 9th and 13th, gastrostomy, at two times. February 12th, patient in good condition; has gained in weight and strength; tube fits very well. March 8th, presented before the New York Surgical Society in good general condition (*Annals of Surgery*, May, 1893, p. 592). Could now and then swallow bread and chopped meat, at other times not even fluids. He had lately learned to chew his food and make it slippery with saliva and then to blow it through the large tube into the stomach. He

gave up this procedure later because of the consecutive, very annoying pressure in the stomach caused by the amount of air that had been blown in with the food. To get rid of some of that pressure he had to lie down, raise the tube perpendicularly and remove its stop-cock. Patient left the hospital March 11th. He died of increasing marasmus in the first days of April, three months after the operation.

CASE VI.— E. R., aged fifty-two; admitted to German Hospital, January 4, 1893. Since last October rapidly increasing hindrance in swallowing; sound meets a slight resistance seven inches, and a second impassable one twelve inches behind teeth; a hard, movable, aching tumor of goose-egg size, especially painful on pressure, in the left fossa supra-clavicularis, reaching underneath the clavicle. Has lost considerably. January 11th, gastrostomy. January 14th, abdominal wound healed without reaction; stomach opened. January 21st, 6 A. M., sudden intense dyspnœa. Expired one hour later under symptoms of perforation of the growth into the trachea.

2. *The method of Hahn.*[1] Published in 1890; first performed in June, 1877.

Fenger's transverse incision; peritoneal cavity opened in same line; second cut in the eighth intercostal space. Parietal peritoneum is punctured at this point by forceps or knife and enlarged by spreading forceps. A fold of the stomach is drawn through the space with a dressing forceps and fastened by stitches between the two cartilages.

Hahn performed the operation eight times up to 1890, and was pleased with its results. He affirms that diaphragm and pleura will not be injured, and believes that the cartilages of the ribs act like a sphincter or stop-cock. Von Hacker saw in two cases, Dalton (St. Louis) in one, erosion of the cartilage of the ninth rib follow the operation. It did not, as it seems, come into favor.

3. *The method of Witzel.*[2] Published in 1891. In this method the fistula passes through both the rectus and the transversalis muscles, whose fibres, running at right angles to each other, may be expected to contract still more efficiently than the rectus muscle alone. The second important feature of this operation of Witzel's is the infolding of the tube in the wall of the stomach, which is stitched over it so as to form an oblique canal.

Fenger's oblique incision through the skin and subcutaneous tissue. Longitudinal incision of the sheath of the rectus muscle. Blunt separation of the rectus and underneath of the adjacent transversalis parallel to the direction of their fibres. They are

(1) Eugen Hahn: "Eine neue Methode der Gastrostomie." Centralbl. f. Chirurgie, 1890, No. 2, p. 193.
(2) Oscar Witzel: "Zur Technik der Magenfistelanlegung," Centralbl. f. Chirurgie, 1891, No. 32, p. 601.

held apart by large blunt hooks. Division of the peritoneum obliquely. The stomach is drawn out in front of the wound, its margins being packed with sterilized gauze, and at once incised by a very small hole toward the cardiac extremity. Into this opening a snugly-fitting rubber tube (of about 25–28 French gauge) is introduced and then buried in the wound of the stomach (infolded) to the extent of about one and one-half inches by stitching over it two folds of the stomach wall (double row of Lembert's sutures). These folds run from the left down to the right and upward, parallel to the external wound. Special care must be taken to put a few stitches beyond the entrance of the tube where a small groove is formed. The entire area is then stitched to the edges of the peritoneal wound by interrupted sutures, thus rendering the operating field extra-peritoneal. Then the large hooks, which hold the muscles apart, are removed. The latter return to their former position and hold the tube between themselves like a double (natural) clamp. The edges of the abdominal wound are sutured by silk-worm-gut or silk up to its inner border where the external end of the tube emerges.

Witzel had thus operated on two patients for malignant stricture of the œsophagus with perfect success. The patients were fed through the tube immediately after the operation. At no time was there any leakage. He even removed the tube after nourishment had been poured into the stomach and reintroduced it temporarily when the next meal was due. The patient remained perfectly dry.

In January, 1893, Mikulicz had published by his first assistant, Von Noorden, five cases which had been successfully operated upon in this way: four for cancerous and one for cicatricial stenosis of the œsophagus.(1) In every one of the patients the tube fitted absolutely tight immediately after the fistula had been established.

In perusing the recent literature I see that the next cases of this kind published are my own, three in number.

Case I.— A man, aged fifty-nine years, was admitted to the German Hospital, January 21, 1893. Difficulty in swallowing began about one year ago and had continued to increase; within the last days fluid refused to pass. There was great emaciation, and diffuse putrid bronchitis existed. A bougie was found to meet resistance near the cardia. January 23, 1893,

(1) Berliner klin. Wochenschrift, 1893, No. 1. In a postscriptum Mikulicz states that within the last two months the operation according to Witzel had been performed a few more times, always with the same satisfactory result.

gastrostomy was performed, strictly following Witzel's description.(1) The rectus and transversalis muscles were bluntly divided. A tube of 28 French gauge was used, and was buried in the wound for about one and three-quarters inches. The patient stood the operation very nicely. Some fluid poured in through the tube after the operation did not regurgitate. Later, feeding at regular short intervals. In spite of very frequent and hard coughing spells, there was not the slightest regurgitation at any time. A small strip of iodoform gauze had been put alongside the tube at the time of the operation, before the external wound was closed by stitches; this was removed on the third day. The wound had healed by primary union throughout.

According to Mikulicz's advice, the patient was kept flat on his back within the first days after the operation, in order to favor a proper working of the fistula. This, I believe, was a mistake. With my present experience I should have let such a patient sit up at once, to prevent pulmonary complications. On the third day after the operation the temperature suddenly rose and pneumonia developed. He died on January 26th, five days after the operation. Post-mortem showed bi-lateral pneumonia; no symptoms of peritonitis.

The specimen, which is of great interest, was presented to the New York Surgical Society, March 13th.(2)

CASE II.—A woman, aged thirty-five years, first experienced difficulty in swallowing, seven months ago. Admitted to German Hospital, February 24, 1893. An elastic bougie is stopped near the cardia. She had lost flesh considerably within the last few months. Great weakness. Pulse, 120. Marked gastrectasia. Enteroptosis. Immediate operative interference indicated, as fluids also were regurgitated. Operation February 26, 1893. Muscles bluntly divided. Rectus small. Incision covers a portion of external and internal obliques, which were also separated in the same way. Stomach very large. Easily pulled in front of the wound. Tube infolded for about two inches. Operation took longer than anticipated on account of some difficulty encountered in lining the field of operation with peritoneum at the lower angle of the wound.(3) Here a small strip of gauze was introduced into the peritoneal cavity for drainage, also alongside the tube. The latter was fastened with a silkworm-gut stitch to the skin, where it emerged. Rectal alimentation during the first twelve hours. Then direct feeding through tube. No regurgitation. No tenderness over abdomen. No tympanites. Stimulation. Patient did not rally, however. She gradually sank and died of heart failure thirty-six hours after the operation.

CASE III.—A man, aged fifty-six years, entered the German Hospital for stricture of the œsophagus, on March 16, 1893. He had acquired

(1) I believe that this was the first case of this kind operated on in this country.
(2) Annals of Surgery, May, 1893, p. 595.
(3) I believe that the difficulty was caused by infolding a longer portion of the tube than is necessary. One and a half inches will, it seems, be sufficient for producing a well-closing canal.

specific disease at the age of twenty-six. He first noticed difficulty in swallowing, four years ago. One year later he came under the care of Dr. Max Einhorn, of this city. The latter had sounded him and found a stricture behind the bifurcation of the trachea. Under the use of iodides the patient improved greatly for a time, being soon again able to swallow all kinds of food. Every six to eight months the stenosis again manifested itself, but always yielded to anti-specific treatment. The latter consisted mainly of the iodides, as mercury always produced a marked and obstinate stomatitis. Three months ago he suddenly developed great difficulty in deglutition. Could not even drink fluids. Again a short turn for the better took place. Yet he followed advice and entered the hospital for an operation. Whilst there, he was suddenly attacked by a broncho-pneumonia, March 23d. There were râles all over the lungs, and marked bronchial breathing posteriorly over the right lower lobe; temperature ran up to 104°; extreme weakness. Quite suddenly the passage down to the stomach was again blocked for semi-solid food; only small quantities of fluid passed. I had to resort to rectal alimentation and strong subcutaneous stimulation. Luckily the fever dropped at this time, and soon a small amount of fluids could be swallowed again. On April 13th I could dare to submit him to Witzel's method of gastrostomy. Rectus muscle fairly developed, is bluntly divided; anæsthesia badly borne; there is continuous retching and coughing; pulse weak and rapid. The lower end of the operating-table was raised and the operation done throughout in this posture. In order to save time the oblique and transversalis muscles were divided with the knife according to the old Fenger's incision. Stomach rapidly found and pulled out. A 28 French-gauge tube was easily introduced and infolded, and the operating field lined with peritoneum. As some stomach juice had oozed out of the small incision during one of the strong paroxysms of cough, just when its borders were held aside with small sharp hooks in order to let the tube pass, a small strip of iodoform gauze was introduced through the lower angle of the wound into the peritoneal cavity, for safety's sake, and passed out between two of the silk-worm-gut sutures which closed the external wound. Another small tampon was put alongside the stomach-tube. It emerged out of the median angle with the latter, which was secured there to the skin by a loosely tied silkworm-gut suture. Dressing. Feeding through the tube after a few hours. Patient was at once kept in a sitting position in bed to avoid further complications of the lungs. Nevertheless, signs of pneumonia with rise of temperature developed on the next day in the same area which had been attacked before. Patient coughed almost continuously. No better opportunity could be desired for demonstrating the brilliant functional result of this operation. It can be asserted that not a drop escaped from the stomach alongside the tube at any time. The wound healed kindly by primary union. The two tampons were removed after forty-eight hours. The lung trouble slowly subsided. Patient made a good recovery. He was presented to the New York Surgical Society on May 10, 1893.[1] He had then taken his supper two hours before. The tube was removed and the man made to cough as hard as he could. Not a bit of stomach contents was pushed out. The skin around the fistula was and is, up to date, in perfect condition. I

(1) Annals of Surgery, November, 1893, p. 555.

noticed at that time and do so to-day, still a slight resistance when, on reintroduction, the tube enters the oblique canal which has been made through the stomach wall. This resistance is certainly due to contraction of the muscular part of the stomach wall. Patient was at the time of the presentation able to swallow bread and meat. This condition lasted for about four weeks, when within a few days the stenosis was found to be again impermeable. The passage became suddenly free twice since that time — on October 20th, and again on January 20th of this year. In October it occurred after a very severe paroxysm of cough, and lately after a hard sneeze. Each time semi-solid food could be well swallowed.(1) This enjoyable condition lasted about three weeks, when the old blockade reappeared. To-day the patient is in good general condition. He has gained flesh since the operation. He weighs now 126 pounds; before the operation, 113. I cannot yet endeavor to state the real cause of the stenosis. It seems to me impossible to pronounce it a syphilitic stenosis. Spasm and extra-œsophageal intermittent glandular swelling can, I believe, be excluded. It is also improbable on account of the long-standing of the trouble, that a malignant growth had developed on the basis of specific scars or ulcerations. I am rather inclined to believe that the œsophagus is bent laterally behind the bifurcation of the trachea, held down to one side by extra-œsophageal contracted tissue. A diverticulum has probably formed at this spot. (The case resembles very much that reported by Maury in The Amer. Journ. of the Med. Sci., April, 1870, p. 365.)

As the patient is quite satisfied with his present condition, I did not yet interfere in order to watch the further development in the function of the fistula, which so far is admirable. I hope to be soon able to report something more definite about the exact pathological condition and probably also of the curative factor in this interesting stenosis.(2)

Lately, W. W. Keen, of Philadelphia, has published a case(3) where he performed Witzel's method of gastrostomy, in a man aged forty-eight years, for a primary cancer of the œsophagus. He was able to fully corroborate what had been observed by Witzel, Mikulicz, and myself. He also found the operation "effectual in preventing any leakage."

Most probably other surgeons have meanwhile resorted to this method in proper cases. They have not, however, as far as I could find published their experience.

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(1) A sound passed into the œsophagus at the time was stopped at the same spot as formerly, 10-10½ inches behind teeth. The attempt at then letting the patient swallow a perforated shot on a silk thread was also frustrated. If the manœuvre had succeeded, it had been my intention to localize the shot in the empty stomach with the help of a urethral tube and head-mirror, catch it with a forceps, pull it out of the fistula and now use the thread for retrograde dilatation by tying tubes to its end.

(2) On February 20th I washed out the stomach and filled it with ten ounces of water, removed the tube, introduced the cystoscope, and searched for the cardia. I found it and introduced an elastic bougie into the œsophagus under the guidance of my eyes. About three to four inches up it was held by an impassable resistance.

(3) "Gastrostomy by Witzel's Method for Primary Cancer of the Œsophagus." Annals of Surgery, December, 1893, p. 638.

Witzel's method is an excellent one. It is, beyond doubt, the best known. It is "simple, moderately rapid," and prevents leakage, and its distressing sequelæ with "absolute certainty," even when the tube is removed. By infolding the tube, the entrance of the latter into the stomach is rendered oblique. Thus an organic valve is artificially formed. This explanation of Witzel is fully justified by the specimen obtained from my first patient. The condition is identically the same as found at the post-mortem of one of Mikulicz's cases. As seen from the specimen, a short artificial cone obliquely protrudes into the lumen of the stomach; it is formed by the stomach wall itself, and is produced by the peculiar and ingenious mode of stitching the same over the tube. At its tip the tube emerges. It is evident that even when the rubber tube is removed, the intragastric pressure must close this internal entrance to the fistula by pressing its two walls upon each other. Mikulicz observed that in the course of time the outer and inner opening approached each other, so that the tube later enters the stomach rather in a straight sagittal direction, not, as at first, obliquely. Still, it worked to perfection. I did not experience this change of direction in my third patient, who has worn his tube now for almost ten months. It still passes the abdominal parietes obliquely, yet not quite as much as at first. This, however, is due to a superficial ulceration in the line of incision near the median angle which occurred about three months after the operation. Slowly the scar, which at this place involved skin and subcutaneous tissue only, gave way. At present the tube leaves the scar at about the junction of its middle and inner third. The angle formed by the tube with the anterior abdominal wall is still 45°.

It is worth recording that Witzel suggested, in his first article, the same operative procedure for establishing a suprapubic vesical fistula. Zweifel, of Leipzig, carried out this idea as the first in a woman of thirty-eight years who had carcinoma of the urethra, May 2, 1893 (*Centralbl. f. Chir.*, 1893, No. 37, p. 785). He extirpated the entire infiltrated canal, with a portion of the bladder, closed the latter by suture, and made a suprapubic artificial urethra, using, after laparotomy, the posterior wall of the bladder where it is covered by peritoneum. The result was ideal. Martin, of Cologne, successfully did the same operation on the extra-peritoneal suprapubic part of the bladder for pronounced hypertrophy of the prostate with retention, in a man of sixty-seven years (*Centralbl. f. Chir.*, 1893, No. 47, p. 1026). The functional result was all that could be desired. I personally tried the method on a patient of seventy-three years, with retention (due to hypertrophy of the prostate) and a large encysted stone, at the German Hospital (January 30, 1894). Suprapubic cystotomy was done, the stone removed, bladder closed by a double row of sutures down to the lower angle of the vesical opening, where a soft rubber catheter was intro-

duced. The latter was then infolded for about one and one-half inches, after Witzel's method; permanent drainage; splendid functional result for the first two days. Then, during a passage from the bowels, lower end of catheter pushed out of the bladder. It had been purposely fastened to the outer skin only. Reintroduced; no leakage. Two days later the same accident; again replaced. This repeated manipulation spoiled the result. Patient now cured, with tightly closing wound around catheter. In a recent article Witzel states that he had used his method of making an oblique fistulous canal with very good success in a lady for an enormous hydronephrosis. He advises to make use of it also in cases where the gall-bladder needs permanent drainage, and where a temporary artificial outlet must be given to the contents of the small intestine (*Centralbl. f. Chir.*, 1893, No. 47, p. 1025).

A few points referring to this method of operating observed on the last patient, in the course of time may be mentioned here.

If the stomach be very much distended, one and one-half pints to one quart having been poured in and the tube then removed, about one-half to one ounce first runs off, mixed with some bubbles of air. Then, suddenly, the outpour ceases. Even strong cough does not throw out a drop. This phenomenon is easily explained. In the very distended stomach the internal cone runs more in a sagittal line. If the tube be extracted, a sufficient amount must first be expelled before the canal again takes its oblique direction, thus producing the valve. But as soon as this is the case, the intra-gastric pressure at once shows its effect. If the tube be left in place, the fistula is always patent, no matter how much fluid is poured into the organ.

Another feature which is very marked in my case is the rapid contraction of the canal after the removal of the tube. It has happened quite often that the man coughed the tube out over night in one of his frequent, severe cough-paroxysms, and, timid as he is, did not dare to at once replace it. When he then came to my office the next morning, the walls of the fistula had perfectly approached each other. A urethral steel sound of the size of the tube pushed into the stomach always sufficed to make room for the tube. For this reason I did not allow the patient to remove the tube temporarily and reintroduce it for each feeding, as Witzel did in one of his patients. Keen also "had tried to remove the tube temporarily in his patient, but had to abandon it from the difficulty of its reintroduction." Perhaps this rapid contraction is, in my case, due to the cicatricial tissue which had formed around the tube on its way through the abdominal parietes. As stated above, the muscles had been divided with the knife, and, of course, retracted at the time of the operation. However, the active contraction of the bluntly divided muscles

of the abdomen will no doubt generally produce the same effect. I therefore believe we will do well in warning our patients not to leave the tube out longer than a few hours only. They will then certainly not be in need of medical help.

I further mention as an interesting phenomenon that as long as the man was obliged to feed himself through the tube only, he had a ravenous appetite, but when he could swallow by the mouth the appetite was at once markedly diminished. When the œsophagus is obstructed, the patient brings up large masses of saliva and mucus about every half-hour. Sometimes the irritation of its presence above the stricture is not sufficient to produce a retrograde reflex spasm of the œsophageal muscles. Then the patient complains of a heavy, annoying pressure in the region of the bifurcation of the trachea. He tickles his throat with a feather until he throws up these masses, then generally mixed with some of the material that had been poured into the stomach. It seems to me most plausible that "the want of satisfaction of the sense of taste," which Keen also mentions, is the cause of the often observed constant hunger in patients with an impermeable stricture of the œsophagus, also after the gastric fistula has been established. For this reason we should induce patients of this kind more to chew the solid food, and then either spit it out and have it washed into the stomach through a funnel, or blow it directly in through the tubes themselves. This latter procedure I had done in one of my cases, operated upon according to Von Hacker's method. As mentioned above, the patient did not like it, however, on account of the heavy pressure which was caused by the air blown in with the food.

I might here still briefly discuss two points of the operative procedure. The blunt division of the rectus and transversalis muscles corresponding to the direction of their fibres. Is this a point of vital importance? Can it always be carried out? In my first case the man, a laborer, had not a particle of fat left, but a splendidly-developed muscular system. Almost the entire length of the oblique incision struck the left rectus muscle. It was divided with the scalpel-handle in its middle, and the two parts then drawn aside with two large, blunt hooks. Then the transversalis was divided, following the direction of its fibres. The operation could be easily finished. However, the assistants assured me that it required all their force to hold the hooks suffi-

ciently apart. In my second case the rectus was very small. The incision also traversed the oblique. I divided all four muscles bluntly, and had them held apart. I found great difficulty in the stitching the stomach to the lower (outer) corner of the peritoneal wound. In carrying out this point to the letter, I certainly wasted some valuable time, which, considering the reduced condition of the patient, was not immaterial. In my third case I began the operation also with the intention not to cut the muscles. However, I noticed soon that I would have to divide the rectus muscle almost three-quarters down to the umbilicus, in order to gain the necessary space. I, therefore, divided the rectus muscle bluntly and then cut the other muscles with the knife, leaving the two parts of the rectus muscle out of the grasp of the hooks. When the intra-abdominal work has been completed, the external portion of the rectus fibres was lifted, and the tube passed underneath. I believe that this was unnecessary. The patient is now under my observation for ten months. His fistula is absolutely patent. I should, therefore, say that the final result of this operation will not be impaired, as far as its functional result is concerned, if the oblique and transversalis muscles be divided with the knife in the line of the incision. Of course, if blunt division be feasible, it should always be carried out. It will be easier if we make the incision through the skin obliquely and straight instead of curved, parallel to the border of the ribs. It will thus be avoided, as Witzel emphasizes, that on account of the retraction of transversally divided muscles a dead space is formed between the fixed portion of the stomach and the skin, which slowly has to fill up with cicatricial tissue. I also believe that the tube is more firmly held in place, and does not as easily glide out of its position in consequence of a coughing or sneezing spell if compressed by the tonic contraction of muscular fibres that cross each other at right angles.

Is it necessary to line the field of operation on the stomach with parietal peritoneum? It certainly will guard against peritonitis by placing the same extra-peritoneal, and it should, therefore, be done. But if we make use of the interrupted suture — what Witzel seems to have done, and I did in all my three cases — this part of the operation is time-robbing. In my next case I should first secure both angles of the peritoneal wound with a silkworm-gut suture, piercing the entire abdominal wall and

catching the wall of the stomach outside of its operating field. These sutures are then held on the stretch without being tied, and a continuous suture rapidly run from one end to the other on both sides. Perhaps even that is superfluous. Keen (*loc. cit.*) put three stitches through the stomach and then lifted it up by pushing the needle through the entire thickness of the abdominal parietes.

4. Ssabanejew-Frank's method. (Called before only Frank's.) In this operation a cone of the stomach is drawn up out of Fenger's incision under a bridge of skin to a point above the border of the ribs, where it is fixed and opened.

I append the names of the two authors to this operation, because it appears, in perusing the literature, that J. F. Ssabanejew, of Odessa, has devised and performed the identical operation(1) as early as May, 1890, which was first done by R. Frank, first assistant of Albert in Vienna, on November 23, 1892. The latter's patient was presented to the Imperial Society of Physicians of Vienna, December 9, 1892.(2) There is no doubt that Frank conceived the plan for the operation, being unaware of Ssabanejew's former similar procedure.

The operation is as follows: Fenger's oblique incision, pretty close to and parallel with the costal cartilages. The muscles should be bluntly separated, according to the direction of their fibres. After dividing the peritoneum the stomach is drawn forward and a cone of about one to one and one-half inches height of the anterior wall of the stomach from near the fundus, held outside and in front of the wound with the help of one or two silk slings. The edges of the incised peritoneum are now stitched to the stomach around the base of this cone. Thus the peritoneal sac is at once closed. Frank advises to also stitch the divided muscles to the stomach in order to strengthen and remove tension from the first row of sutures. Now a second incision is made above the border of the ribs, three-quarters to one inch long and about one and one-quarter to one and one-half inches apart from the first one. It only penetrates the skin. The interposed bridge of skin is bluntly undermined, and the stomach cone pulled underneath it and out of the upper wound with the help of the silk slings. The wound of the abdominal wall is closed and the

(1) J. F. Ssabanejew, Odessa: "Ueber die Anlegung einer roehrenfoermigen Magenfistel bei Verengerungen der Speiseroehre," Wratsch, 1890, No. 39, and Chirurgitscheski-Westnik, June, 1893, published in the Russian language. Cf. Report in Centralblatt für Chirurgie, 1893, No. 40, p. 862.

(2) Rudolf Frank: "Eine neue Methode der Gastrostomie bei Carcinoma œsophagi," Wiener klinische Wochenschrift, 1893, 13.

stomach incised with the knife about one-half inch long (very handily between the two slings), and stitched to the skin.

Ssabanejew has done the operation four times for cancer of the œsophagus. The patients lived from four days to ten months afterward. Their general condition greatly improved for some time. Regurgitation through the fistula could be easily prevented. In two cases the autopsy showed the gastric fold firmly healed in its new position. Its nutrition was not impaired by the curving and tension. The fistula was two to three inches long.

Frank reports four cases. Every one was successful also as far as the working of the fistula was concerned. He explains the favorable mechanical effect of this operation as follows: "As in Hahn's operation, the external opening of the fistula is raised; only if the stomach be filled to a great extent the level of its contents reaches the line which corresponds to the external opening. The incised gastric cone is bent over the border of the ribs; the bridge of skin covering the cone compresses it. In all of Frank's cases the fistula closed absolutely water-tight at all times without the use of a special apparatus. Only for the purpose of feeding was a catheter or a drainage-tube introduced. Immediately afterward the patients could freely move around without losing any thing of the stomach contents. No complaints were made on account of the drawn-out wall of the stomach. Frank adds that the principle brought out in the operation, namely, to let the fistulous canal pass the abdominal parietes in a curved direction underneath a stretched cutaneous bridge, could also be useful in cases of colostomy for cancerous rectal stenosis.

My own experience has been derived from the following three cases:

Case I.— A man, aged sixty-seven years, lately treated for cancer of the pylorus, had brought up every thing, fluids included, within the last eight days; intense emaciation. Admitted to the German Hospital, April 17, 1893. Stenosis near cardia; impassable. Operation, April 20, 1893. On account of the deep concavity of the abdomen the cone could not be pulled further, in the strongly-built man, underneath the skin-bridge than about one-half inch over the border of the ribs. There it was opened and incised; a tube was introduced. Immediate feeding. No regurgitation. Patient died of heart-failure the following day. I believe that here general narcosis had been contra-indicated; I should have used instead, cocaine anæsthesia.

Case II.— A man aged sixty-one years had symptoms of malignant stricture of œsophagus since last spring. On entering the German Hospital, April 17, 1893, he was very low, emaciated, and anæmic. Not a drop of water passed down. Rectal alimentation and stimulation — the latter

also subcutaneously — preparatory to the operation; the latter was done April 24, 1893. Stomach greatly contracted; it could not well be drawn forward. Nevertheless the operation was finished without special difficulty. Skin-bridge a little more than one inch wide. Second incision about three-quarters of an inch above border of the ribs. Patient stood the operation well. Lower wound healed by primary union. As a consequence of the undue traction exerted upon the attachment of the skin, a part of the lower circumference of the opening in the stomach somewhat retracted and the upper wound, which had originally been made at least three-quarters of an inch above the border of the ribs, was pulled down below this border. Yet the result was good. I believe that the undue tension can be avoided by putting a stitch of silkworm-gut through the entire thickness of the abdominal wall at both angles of the peritoneal wound, catching on its way a portion of the stomach. They are not tied until the stomach has been stitched to the peritoneum all around. They will hold the stomach thoroughly up to the abdominal wall, preventing traction on other sutures. Patient made a good recovery. He was presented to the New York Surgical Society on May 10, 1893.(1) He did not wear a tube except at the time of feeding. A large tube, of almost a thumb's size, is then always easily introduced. When presented the patient had a full stomach. More water was added and the man then ordered to cough hard. Not a drop escaped. The functional result was certainly all that could be desired. Patient died on June 14th, in consequence of cancerous cachexia.

Case III.— H. S., a boy, aged four years, with impassable cicatricial stenosis of the œsophagus. Gastrostomy according to Von Hacker had been performed by Dr. Gerster for the sake of retrograde sounding and cutting with the string (Abbe), July 20, 1893. Feeding through the fistula. Considerable leakage from the stomach. Three days later the gastric opening was closed. The external abdominal wound healed by granulation. For a time the boy was better, when, about September 1st, sounds again refused to pass the stricture. He lost ground steadily. Patient then came under my care. Ssabanejew-Frank's operation October 3, 1893. Stomach found fixed to the parietal peritoneum by very dense adhesions. It was freed for an area of about three inches, then its anterior wall pulled forward, the cone passed under a skin-bridge of about one and one-quarter inches in width, and opened. There was a great tension. In order to stitch the stomach to the lower circumference of the upper wound, a short longitudinal cut had to be added, thus making a T-shaped incision. Boy stood the operation nicely; but there was almost continuous leakage in spite of all trials to prevent it. On account of the complications presented in the case, this unsatisfactory functional result cannot well be brought forward against the value of the operation.

In reviewing the three recommendable operations for gastrostomy, namely, that of Von Hacker, Witzel, and Ssabanejew-Frank, with reference to their usefulness and indication, we necessarily have to pay attention to the character of the stenosis.

1. *Cicatricial.* Here the gastric fistula must be temporarily established if regular sounding from the mouth or from an arti-

(1) Annals of Surgery, November, 1893, p. 55.

ficial œsophageal lip fistula on the neck(1) does not succeed, or only succeeds up to a certain degree of dilatation. This is especially experienced in treating long tubular strictures of the thoracic portion of the œsophagus. In such cases the surgeon performs gastrostomy:

a. For retrograde blunt dilatation, which, if successful, is later substituted by sounding from above.

b. For the purpose of being enabled to strive for a radical cure, viz.: to divide the stricture (internal œsophagotomy) and then stretch it with sounds.

The stricture can be cut with small knives on a string, pulled through from below (Lange), or with a straight urethrotome introduced from an œsophageal fistula in the neck, after careful disinfection of the stomach and of the portion of the œsophagus below the fistula on the neck (Willy Meyer, *loc. cit.*), or with a string (Abbe).(2)

Internal œsophagotomy (cutting with a knife) is considered a dangerous operation up to the present date. This mainly on account of the surgeon's inability to properly disinfect the operating field; then on account of the danger of perforating the canal, injuring an adjacent vessel or nerve, etc., and setting up acute posterior mediastinitis. The first danger can be averted by carrying out the proposition made by me in 1892 (*loc. cit.*), viz.: to add gastrostomy to external œsophagotomy. The safest radical method seems to be Abbe's operation — to relieve the œsophageal stricture by cutting with a string. It has to be proved yet, however, by a series of cases, that this method also properly and safely divides, with the hope for a permanent cure, a long tubular stricture of the thoracic portion. No doubt the two cases presented by Dr. Abbe to the New York Surgical Society(3) must induce surgeons to try his procedure before all others in cases that need an operation.(4)

But is there any way of avoiding the development of a marked cicatricial stenosis of the œsophagus, with its terrible sufferings and sometimes incurable consequences for the patient?

(1) Graser: "Zur Behandlung der Œsophagus-Stenosen," Verhandlungen der Deutschen Gesellschaft f. Chirurgie XIX. Congress, 1890, p. 136. Willy Meyer: "External Œsophagotomy in the Operative Treatment of Cicatricial Stricture of the Œsophagus; with a Proposition for Improving the Method of Performing Internal Œsophagotomy," N. Y. Med. Journ., 1892, p. 561.

(2) "A New and Safe Method of Cutting Œsophageal Strictures," N. Y. Med. Record, February, 1893, p. 225.

(3) Report of New York Surgical Society. Annals of Surgery, July, 1893, p. 37, and January, 1894, p. 88.

(4) See, also, W. T. Mayo: "Stricture of the Œsophagus; Division and Dilatation after Gastrostomy and Œsophagotomy. Testimony as to the Value of Abbe's String Method of Division," N. Y. Med. Journ., April 7, 1894, p. 433.

In 1887 Maydl, of Vienna, proposed(1) to perform in such cases gastrostomy as early as possible — very soon after the acid or caustic lye, etc., had been swallowed. In this way the food would not pass over the intra-œsophageal ulcerations; the continuous chemical and mechanical irritation would be avoided. Fluids might be swallowed; they would help to wash off the surface. Of course, cicatricial tissue would nevertheless be formed; there would also be the same tendency to its recontraction; a stricture would form if matters were left to themselves. But by proper and "timely" sounding from below and above can most probably be avoided the narrow, twisted, often impermeable stricture which confronts the surgeon almost in every instance, if no operation be performed.(2) In view of the brilliant functional results obtained by Witzel's method, Mikulicz has again taken up this idea. He believes "that it will be the wisest in severe cases of burn of the œsophagus to establish a gastric fistula *early*, to protect the reparative process inside the canal against the disturbances caused by the passage of the food." In his one case mentioned above, where the elastic bougie did not pass any longer (for five days), swallowing became easier without help four weeks after the operation. Now a bougie cure (from above) was feasible and successful. Another month later semi-solid food passed with ease. The tube was removed from the stomach. The fistula closed spontaneously without further interference within sixteen days.

Which of the three operations shall be performed in such a case? Frank states that his operation is devised for carcinomatous strictures only. It would require a troublesome operation to close the resulting fistula. Von Hacker's and Witzel's methods thus only come up for discussion.

With reference to the absolute patency of the fistula resulting from Witzel's procedure, we shall not fail by always giving it the preference, provided it can be carried out. Contra-indications are, according to Von Noorden:[3] 1. Great weakness of the patient, which would forbid an operation of nearly half an hour's time. This objection would not hold good any longer if we accept "early gastrostomy" in severe burns of the œsophagus. 2. If on account of cicatricial tissue in the gastric wall the two folds of the latter cannot be properly raised. This objection also falls to

(1) "Die Magen-Chirurgie der letzten funf Yahre," Internat. klin. Rundschau, 1887.
(2) Von Hacker proposes to start sounding of the œsophagus with the help of this gastric fistula, two or three weeks after the accident. Ueber die nach Veractzungen entstehenden Speiseroehren-Verengerungen. Wien, 1889, p 121.
(3) *Loc. cit.*

the ground if gastrostomy be done shortly after the accident. 3. If the stomach wall does not yield to traction. Witzel asserts that "even the very much contracted stomach" can be pulled forward in front of the abdominal wound by a steady pull continued for a short while. I can corroborate this by my own experience. The future has to decide this point. 4. The small size of the stomach in young children.

In cases of this kind we then would resort to Von Hacker's method. If the points in question cannot be decided before, but are found during the operation, we will close the oblique peritoneal wound and add at once Von Hacker's incision. In children the rectus muscle is rather poorly developed. Its sphincter-like contraction will rarely prevent leakage. Then we would be in need of the Von Hacker-Scheimpflug canula or Mikulicz's glass tampon (*loc. cit.*). Another drawback of Von Hacker's operation which has to be taken into account is that it will rarely close spontaneously after removal of the tube.

This spontaneous healing of the gastric fistula, as observed by Mikulicz, is certainly one of the most brilliant points in favor of Witzel's operation in this class of cases.

2. *Malignant stenosis.* Further experience is needed with reference to the merits and possible drawbacks in the final result of Ssabanejew-Frank's method before an attempt at giving each of the three operations its proper place can be ventured. Yet the following might with propriety be said now. If further observation corroborates the experience made by Ssabanejew-Frank, and myself, namely, that after this method perfect patency of the fistula also results in every case, as after Witzel's I do not doubt that it will become the standard operation for gastrostomy in cases of malignant œsophageal stenosis, and for these reasons the operation can be more rapidly done than Witzel's; it is also safer, because the stomach is not primarily incised, but after the peritoneal cavity is closed; the stomach is, as in Witzel's operation, opened at once in the same sitting; a wide fistula results, which easily admits the largest-sized tube or nozzle of a syringe; the tube can be left out with safety; contraction cannot occur; the patient will thus be very comfortable and can himself easily introduce the tube whenever a meal is due.(1)

(1) It may occur that the stomach wall will not yield enough to be drawn out in a cone, perhaps then, if the carcinoma involves the lower portion of the œsophagus and the cardia or a part of the gastric wall; this being the case, Witzel's operation should be resorted to.

If further experience should be adverse, however, which seems rather improbable, we again must select between Von Hacker's and Witzel's operations only. Then about the same would hold good what has been said above with reference to the cicatricial stenosis. If the patient be not too low, if the stomach wall can be drawn up and folded, Witzel's method will deserve preference in every case. But then a large-sized tube should be selected for being infolded. Von Hacker's method will thus be reserved for such patients who are very low (cocaine-anæsthesia).

It is to be hoped that, in view of these excellent operations, cases of malignant stenosis of the œsophagus will be nowadays referred to the surgeon in the early and not any longer in the last stage of the disease. "As soon as fluids and semi-solid food find some resistance in passing down, or as soon as the patient is visibly losing ground," says Mikulicz, "gastrostomy is indicated." I should make an addition to this dictum and say: "And as soon as the scales show a steady, though perhaps slow decrease in the patient's weight." For this reason such patients should be ordered to weigh themselves every week or fourteen days and report to the physician. "It is absolutely wrong to let gastrostomy be the very last resort. By such temporizing, a condition of inanition will be produced in the patient which would contraindicate an interference that otherwise is connected with very little or no risk at all. The surgeon cannot dare to do any thing with the patient in a far-advanced state of inanition. The physician should be cognizant of the fact that a certain degree of strength and resistance is needed to stand even a relatively small operation; that a certain degree of active work of the tissues of the organs and of the whole organism is required to heal even a small wound; and that, lastly, the faculty of digestion and assimilation of the gastro-intestinal tract in a certain stage of inanition ceases, and cannot be awakened, not even when a gastric fistula has been established. The patients starve to death with a full stomach, with full intestines." (Von Noorden.)

An early operation, on the other side, will be less dangerous; it can be done under general anæsthesia; it will by its result, "the rapid improvement of the patient's general condition," enable the doctor to easier deceive the patient with reference to the real nature of his trouble;(1) it will spare the patient the con-

(1) And this so much oftener, as it has been frequently observed, also, almost in every one of my cases, that patients with cancerous, tight stricture of the œsophagus can swallow again, for a time at least, shortly after they have been fed through the gastric fistula only.

tinuous increasing difficulty in swallowing; it prevents dangerous and useless attempts at dilatation; it will prolong life on account of the slower growth of the tumor due to the elimination of the mechanical and chemical irritations produced by the passing food. This last point deserved to be especially emphasized. With reference to it, gastrostomy for carcinoma œsophagi must be put in parallel with colostomy for carcinoma recti. The latter gives less trouble, grows slower, and breaks down less rapidly, if excluded from the intestinal tract. The same holds good for carcinoma œsophagi.

Summing up, I should say:

1. There are now three useful and reliable methods of gastrostomy at the surgeon's disposal. Of these, one (Witzel's) prevents leakage with absolute certainty. The two others, if properly carried out, promise the same good result. Thus the patient who had been submitted to this operation will not starve from regurgitation of the food alongside the tube.

2. In view of this fact, gastrostomy should be resorted to "early" in cases that will sooner or later need this operation.

3. In cases of burn of the œsophagus, primary gastrostomy and timely dilatation of the contracting scar will most probably prevent conditions which at present generally confront the surgeon in this class of cases, and are sometimes incurable. Witzel's method of gastrostomy deserves preference. The oblique canal produced by it will close spontaneously when the tube has been removed. Thus a secondary operation will not be needed.

4. In cases of cancer of the œsophagus a gastric fistula should be established as soon as the scales show a steady decrease of the patient's weight.

5. Further experience is needed with reference to Ssabanejew-Frank's method before an attempt can be made at giving each of the three operations its proper place in the treatment of cancerous stenosis. If future observations be favorable, Ssabanejew-Frank's operation seems to be destined to become the standard one for malignant stricture of the œsophagus. If unfavorable, Witzel's method should be done wherever it can be carried out.

6. Von Hacker's method should then be reserved for far-gone cases, and should, if the patient be very weak, be done under cocaine-anæsthesia, best at two sittings. If properly performed the outlook for making the fistula close tightly around the tube is good.

IN MEMORIAM.

GRAILY HEWITT, Honorary Member.
Died at London, England, September, 1893, æt. 66.

LAURENCE JOHNSON Permanent Member.
Died at New York, March 18, 1893, æt. 48.

CALEB GREEN, Permanent Member.
Died at Homer, May 10, 1893, æt. 74.

E. W. SIMMONS, Permanent Member.
Died at Canandaigua, May 13, 1893, æt. 83.

BENJAMIN A. FORDYCE, Permanent Member.
Died at Union Springs, June 2, 1893, æt. 70.

ARCHIBALD T. DOUGLAS, Permanent Member.
Died at Groton, Conn., June 9, 1893, æt. 69.

A. S. CUMMINGS, Permanent Member.
Died at Cayuga, July 5, 1893, æt. 76.

NELSON NIVISON, Permanent Member.
Died at Burdette, July 14, 1893, æt. 78.

Z. B. BRIDGES, Permanent Member.
Died at Ogdensburg, July 16, 1893, æt. 66.

WILLIAM FITCH, Permanent Member.
Died at Dryden, September 14, 1893, æt. 70.

WILLIAM T. WHITE, Permanent Member.
Died at New York, September 17, 1893, æt. 64.

SAMUEL AVERY, Permanent Member.
Died at Phœnix, September 17, 1893, æt. 80.

JOHN K. CHAMBERLAYNE, Permanent Member.
Died at San Diego, California, October 5, 1893, æt. 71.

JOHN C. PETERS, Permanent Member.
Died at New York, October 21, 1893, æt. 75.

ALEXANDER NELLIS, Jr., Delegate.
Died at Willard, December 27, 1893, æt. 47.

OBITUARIES.

I. Memorial of Dr. Alexander Nellis, Jr.,

OF WILLARD, N. Y.

By J. M. MOSHER, M. D.,
OGDENSBURG.

Alexander Nellis, Jr., first assistant physician of the Willard State Hospital, Willard, N. Y., died at the hospital, December 27, 1893. He suffered an attack of epidemic influenza, complicated by pneumonia, and resulting in early and extreme prostration. Within a few hours he became delirious and unconscious, and so continued at intervals for five days preceding the fatal termination.

Dr. Nellis was born at Schenectady, N. Y., February 11, 1846. He received his preliminary education in the common schools of Amsterdam and at Eastman's Business College, Poughkeepsie. In 1870 he registered in the office of Drs. Snell and Robb, of Amsterdam, and in December, 1872, graduated from the Albany Medical College. For nine months after graduation he served as assistant city physician in the Albany City and County Almshouse and Asylum, and in October, 1873, was appointed assistant physician at the Willard State Hospital, then known as the Willard Asylum. He remained at Willard until May, 1880, when he resigned and took an extended journey through the West and South-west, finally locating in Denver, Colorado. Having received the appointment of surgeon to the Mexican National railway, then in process of construction, he left Denver, and removed to Corpus Christi, the headquarters of the railroad, and afterward went to Laredo, on the Rio Grande. He spent a year on the frontier and saw much of Mexican life. He was called home by the serious illness of his brother, and in March, 1883, was reappointed assistant physician at Willard. In June, 1889, he was promoted to be first assistant physician. In October, 1889, he married Miss Mary E. Meddick, of Ovid, who survives him.

He was a member of the Montgomery and Seneca County Medical Societies, and president of the latter in 1885. In 1891 he was made a delegate to the State Society, and at the time of his death was eligible to permanent membership. He was an active member of the American Medico-Psychological Association, and in 1889 he was vice-president of the Alumni Association of the Albany Medical College.

His published contributions are: "Report on a Case of Acute Mania," *Alienist and Neurologist*, 1884; presidential address, Seneca County Medical Society, "Insanity and Its Treatment,"

published by request of the society, June, 1887; "Report on a Case of Atrophy of Brain and Idiocy," *American Journal of Insanity*, October, 1887. He also assisted in the compilation of the general index of the first forty-five volumes of the *American Journal of Insanity*, published at Willard in 1889.

Dr. Nellis entered the service of the Willard State Hospital four years after the institution entered upon its active work. He was a witness of its growth and an active agent in its development. He entered fully into the sentiment of charity and humanity underlying the practical administration of its affairs, and was always aggressive and loyal in its behalf. He was conscientious and studious in his profession and tolerant to a high degree of the vagaries of his patients. The annual reports make repeated complimentary references to his work, and to his especial efforts to procure amusement and diversion for the patients, involving labor beyond the actual requirements of his position. He served long and faithfully, and lived and died in the spirit of the motto above his desk:

"They serve God well who serve his creatures."

II. Memoir of Laurence Johnson, A. M., M. D.,*

OF NEW YORK.

By DR. DANIEL LEWIS,
NEW YORK.

Dr. Laurence Johnson was born in South Butler, Wayne county, New York, June 7, 1845, and died of pneumonia in New York city, March 18, 1893. His father, Hon. Thomas Johnson, was a native of Saratoga and of Scotch descent, while his mother's ancestors were from the North of Ireland. From such sturdy antecedents were inherited many of the sterling qualities which distinguished the subject of this sketch among his fellows even in early life. His youth was passed upon his father's farm amidst the quiet and romantic scenery of that portion of the Empire State, and such environments were important factors in developing the artistic tastes and love of nature which were a prominent feature of his character. This life upon the farm, where thrift depended upon persistent industry, and that alone, was also a training school in which the boy acquired a taste for work which only grew stronger with advancing years and became a distinguishing feature of his entire life.

His education until his sixteenth year was gained in the "district school," after which he became a student in Falley Seminary, at Fulton, Oswego county, at that time one of the best academies

*Read before the Medical Society of the County of New York, April 24, 1893.

in the State. Those who knew young Johnson then declared that he was an excellent student, his delight being the study of the natural sciences, especially chemistry and microscopy. In the winter of 1862 he taught a district school, and commenced a second term in 1863. At that time the destiny of the war for the Union was in doubt. Among the farmers' boys of that day patriotism was an innate quality, and when President Lincoln issued a new call for men, Laurence abandoned his school and enlisted in Company A, Ninth N. Y. Heavy Artillery. His first service was in the defense of Washington. He was soon disabled by a prolonged illness, and when convalescent entered the Free Military Academy for the training of officers for colored troops in Philadelphia, successfully passed his examination, and was appointed first lieutenant October 7, 1864, and was assigned to duty in the Eighth U. S. Colored Artillery, at Paducah, Ky. Six months later the regiment was ordered to Washington, where, the war being closed, he tendered his resignation, which was accepted May 9, 1865. His interest in military affairs remained unabated, and in his library is one of the most complete lists of histories of the Civil war to be found in any private or public collection. At the time of his death he was a comrade of James C. Rice Post of the Grand Army, Department of New York, and a member of the military order of the Loyal Legion.

Following the close of the war he became a student in the Bellevue Hospital Medical College, from which he received the degree of Doctor of Medicine in 1868, and at once commenced practice in West 26th street, in this city. In the first years of his practice he encountered the usual leisure for study and the pecuniary rewards of the average stranger in the metropolis. The artistic tendencies of his mind led him to apply to the American Academy of Design for instruction. He was told that if he would make an acceptable drawing of the human foot he would be admitted as a student for a year, with the welcome condition of free tuition. Although he had never received any instruction in drawing, he undertook the task. After many attempts his work was accepted, and he became an enthusiastic student of the Academy. He soon became proficient, and was offered a position as instructor in anatomical drawing, which, however, was not accepted. In his work on medical botany, the colored plates are from water colors of his own, and they are models of superb execution. Oil painting became a pleasant pastime and etching a delight, many examples of which are in the possession of his family and friends, and they are of a high order of excellence. Photography in all its branches was one of his favorite occupations, in which his skill was recognized by qualified judges. In looking over his work in this field we are at once impressed with the conviction that had he chosen art as a profession he would have attained an honored and perhaps distinguished reputation.

Early in his medical career he was appointed attending physician to the Northwestern Dispensary; in 1875 he became attending physician to Demilt Dispensary, in the department of diseases of the digestive organs, and was also connected for a time with the Hospital for the Ruptured and Crippled. He was a member of the medical staff of the Randall's Island Hospital for several years, a position which he resigned in order to become one of the visiting physicians to Gouverneur Hospital, a position which he held at the time of his death. His habit of accurate observation and fidelity to the interests of these charitable institutions combined to render him an expert in clinical medicine, in which department he had few superiors. The trustees of the University of the City of New York elected him Lecturer on Medical Botany in the Medical School, and afterward appointed him Professor of Clinical Medicine, both of which positions he filled with the same zeal and faithfulness which characterized every work which he undertook.

Dr. Johnson was not a prolific writer, but his literary work was of a character which required accuracy and the most painstaking and judicial scrutiny of every detail. His book on "Medical Botany," to which allusion has been made, was in a marked degree original work, and occupies a high rank as a text-book. The American edition of Phillips' "Materia Medica and Therapeutics" was edited by him, and also a Medical Formulary, one of William Wood & Co.'s Library of the series of 1881.

His reputation as an expert in medical botany and materia medica led to his selection as one of the members of the Committee of Revision of the United States Pharmacopœia of 1880, a position involving so much attention to the minutest details that it is difficult to understand when a man who had secured as large and exacting a practice as his became could have found the time for such a task. In the discussions of medical topics in the various societies with which he was connected he often participated, and with a clearness, force, and terseness of expression worthy of universal imitation.

In 1876 he was elected a member of the Medical Society of the County of New York, and from that time till his death was devoted to its interests and attended the meetings with marked regularity. His judicial temperament fitted him especially for the positions of trust and honor within its gift, and he served upon its committees, as a member of the Board of Censors, was elected a delegate to the Medical Society of the State of New York, served as Vice-President in 1885, and was chosen President in 1886 and re-elected in 1887. As a presiding officer he was energetic, alert, skilled in parliamentary usages, and enjoyed the confidence of every member of the Society. The influence of such a president is of vast importance to a society, and to his wise forethought we are indebted in a large degree for the steadily increasing prosperity of this organization.

He became a Fellow of the New York Academy of Medicine the same year that he joined the County Society, and, in consideration of his literary tastes and erudition, soon became Executive Librarian, and in 1890 was elected a member of the Board of Trustees, which position he held at the time of his death. The Society for the Relief of the Widows and Orphans of Medical Men elected him a member of its Board of Managers, and he was also a Trustee of the New York Physicians' Mutual Aid Association.

The record of Dr. Johnson's society work would be incomplete without a reference to his membership in the Medical Society of the State of New York, in which he was extremely active in every great reform which has originated and been successfully advocated by that ancient and honorable society, more especially in the final adoption of the system of State examination for license to practice, which marks the beginning of a new era in the history of medical education in America. He was also especially honored by receiving the degree of Master of Arts from the Wesleyan University at Middletown.

In glancing over the enormous work accomplished in the years which were allotted to him, the first feeling is one of amazement at its immensity. His mind never rested, and to his intense activity are to be attributed his broad attainments and, I regret to say, his untimely death. After a day of fatiguing routine work he would labor on far into the night in writing, study of the classics, or maturing plans for the advancement of the public interests or organizations with which he was connected. Rest was never sought or taken to any extent until the evidence of failing strength compelled him to take it. In 1889 he made a short trip to Scotland, and the following year visited Europe again. Even in this recreation his indomitable energy and activity were unrelaxed. It was my privilege to accompany him on both occasions, and I refer to it here because of the receipt of a letter from Dr. Hugh Murray, Surgeon-in-Chief of the Cancer Hospital of Glasgow, whom he then met for the first time, and whose friendship became close and lasting. Dr. Murray says under date of April 10, 1893: "It has not been my lot to have met a warmer, bigger-hearted, or more amiable man — unassuming and genial notwithstanding his many talents and great abilities. Cosmopolitan in sympathy and kindness, his memory shall live, as shall his virtues and goodness." This tribute to our departed friend is very gratifying, as it is merited.

I would say in passing that if there is one lesson which medical men should learn from Dr. Johnson's history of more importance than another, it is the necessity for timely and sufficient cessation from our routine work. In looking over the list of those who have died in what should have been the prime of life, I find many whose lives could have been prolonged, as his might

have been, by brain rest and proper respect for the laws of health. No man, however lavishly nature may have endowed him with bodily health and strength, can work all the time with impunity.

In a study of the elements of character which distinguished Dr. Johnson from his colleagues and impelled him to a position of preference which few attain, we are inclined to note his unbounded enthusiasm. This is to a large extent a matter of temperament, and yet it will grow with a rapidity and force, when exercised as he exercised it, that will secure culture, artistic taste and skill, scientific attainments, and all the highest and most charming attributes of manhood. Enthusiasm such as governed his every plan and purpose will even wrest victory from defeat and insure success, when the man who is wanting in this quality will encounter disappointment and failure. To his enthusiasm more than to any one thing Dr. Johnson owed his position as a leader among us. We instinctively felt that if he was at the front the road was certain to lead us in the right direction, obstructions would be levelled, chasms bridged over, dark places lighted, and crooked paths made straight. This quality would have secured him a distinguished position in any profession, and I have sometimes almost wished that such men had been called to a sphere of action where a marked personality finds a broader field of influence than in the medical profession.

The crowning feature of his character was his absolute loyalty to his friends. The warmth and geniality of his heart attracted many, who became devoted to him with an ardor which even death will intensify and foster.

In the home of his boyhood, where one by one the ties of kindred were severed, it was to Laurence that the bereaved ones always looked for counsel and aid, and it was granted with a royal bounty. No urgency of professional or business interests ever for a moment was allowed to deprive them of his immediate presence, and no words of mine can express the measure of their personal and irreparable bereavement.

I can understand it, however, for an intimate friendship, extending over nearly a score of years, had bound him to me in bonds even closer than those of brotherhood. I know you will pardon these personal allusions when I tell you how the pen falters as I attempt to trace this brief record of his beneficent life and its untimely transformation. The tide of affairs in this city, which was his home, will move onward heedless of the hands that fail and the eyes which fade and the hearts that ache; men will recruit the ranks of this County Medical Society who did not know Laurence Johnson; but to all of us who did know him his memory will remain as an inspiration to every ambition which finds its most perfect fruition in the career of a zealous and unselfish practitioner of medicine.

Dr. Johnson was married to Miss Ada Rowe, of Wayne county, in 1872, and a son and daughter survive him.

In closing this memoir it is my sad duty to record the death of Mrs. Johnson, who survived him only fifteen days. A system enfeebled by a protracted illness was unable to withstand the shock of such a bereavement, and her death under such circumstances renders this sad story almost a tragedy.

Whatever our individual views of the future may be, it is a very pleasing thought that there may be, as many of us believe there is, a life beyond the confines of this one, where those rudely parted here are reunited in an existence as happy as it is enduring.

III. Memorial of Dr. John Kerr Chamberlayne,

OF UTICA, N. Y.

By JAMES H. GLASS, M. D.,
UTICA.

John Kerr Chamberlayne died at San Diego, California, October 5, 1893, where he had gone nearly one year before at the earnest solicitation of his friends for the purpose of recuperating a naturally vigorous constitution, broken by years of labor in the practice of his chosen profession.

Dr. Chamberlayne was born November 23, 1822, in Guilford, Chenango county, N. Y. Graduating at the Gilbertsville Academy, he took up the study of medicine in the University of Maryland at Baltimore, taking his medical degree from that institution in 1847. With characteristic energy Dr. Chamberlayne at once established himself at Cazenovia, N. Y., rapidly acquiring a large practice, to which he earnestly devoted himself until 1870, when he came to Utica, N. Y., where he has since lived and worked, mainly in the consultation field. Dr. Chamberlayne was a member of the American Medical Association, the New York State Medical Society, member and president of the Oneida and Madison County Medical Societies, consulting physician to St. Luke's Hospital, Utica; member of the board of trustees of Cazenovia Seminary; life member of the Utica Mechanics' Association; member of the Fort Schuyler Club, of Utica; a Mason and an Odd Fellow. In the business relation his counsel was also appreciated and prized, he being one of the trustees of the Skenandoah Cotton Company, of Utica, and a director in the Utica Water-works Company from 1874, and secretary of the board of directors from 1886.

In 1853 Dr. Chamberlayne married Miss Frances Johnson, a daughter of the late Judge Arthur Johnson, of Utica, who, with one daughter, Miss Eleanor Chamberlayne, survive him. Of late

years Dr. Chamberlayne has travelled considerably in this country and abroad, adding in those trips by his acute observation to that broad range of information which, with the faculty of imparting it, made him the charming and instructive companion. A friend has aptly said of him: "Always self contained, he had a straightforward way of greeting that made the modern 'jerks and scrapings' seem like a fit of social hysterics," — a mind well stored with valuable knowledge, a judgment clear and accurate, a moral sense of right and wrong unerring in its conclusions, made him a man of mark in the community where he lived. But it was in his family and with his friends, after all, that he was at his best. His rare culture and refined ways, his sweet temper and keen sense of wit, were only appreciated by those who knew him well. With decided convictions of his own, he was always tolerant of the views of others, and that modesty, which so becomes a dignified man, was one of the most rare charms of his character. His presence was never an intrusion, but rather the sweeter part of one's self.

IV. Obituary Notice of Dr. William Fitch, of Dryden, N. Y.

By F. H. GREEN, M. D.,
HOMER.

William Fitch, M. D., was born in Franklin, Delaware county, N. Y., January 26, 1823, and died in Dryden, N. Y., September 14, 1893. He entered the Albany Medical College in the year 1844 and was graduated therefrom in 1846.

On July 12, 1847, he married Miss Urania Everett and commenced the practice of his profession in Virgil, Cortland county, N. Y., where he continued to reside until 1858, when he removed to Dryden, which village was thereafter his home until his death. He joined the Cortland County Medical Society in 1848 and was an active member until his death, none being more punctual in attendance than he, although since 1858 residing in another county. In 1873 he was elected a member of the New York State Medical Society, and continued with that body until the organization of the New York State Medical Association, of which he was one of the founders and fellows. He was known to the citizens of his town as an honest man, kind and courteous in all social and business relations. He was very much interested in educational matters and was largely, if not principally, instrumental in securing the introduction of the graded systems of instruction into the public schools of his village. He was elected the first president of the Board of Education, continuing in that honorable position for ten consecutive years.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

OFFICERS OF THE SOCIETY FROM ITS ORGANIZATION TO THE PRESENT TIME.

Year.	*President.*	*Vice-President.*	*Secretary.*	*Treasurer.*
1807	Wm. McClelland,	Alexander Shelden,	John Stearns,	Moses Willard.
1808	Nicholas Romayne,	Alexander Shelden,	John Stearns,	James G. Graham.
1809	Nicholas Romayne,	Alexander Shelden,	John Stearns,	Andrew Proudfit.
1810	Nicholas Romayne,	Alexander Shelden,	John Stearns,	Andrew Proudfit.
1811	William Wilson,	Westel Willoughby,	Benj. R. Bevier,	Asa B. Sizer.
1812	John R. B. Rodgers,	Westel Willoughby,	John Stearns,	Asa B. Sizer.
1813	John R. B. Rodgers,	Joseph White,	John Stearns,	Jas. L. Van Kleeck.
1814	John R. B. Rodgers,	Joseph White,	Ely Burritt,	Jas. L. Van Kleeck.
1815	Joseph White,	Ely Burritt,	James Low,	Westel Willoughby.
1816	Joseph White,	Ely Burritt,	James Low,	John Stearns.
1817	John Stearns,	Henry Mitchell,	James Low,	Chas. D. Townsend.
1818	John Stearns,	Henry Mitchell,	Peter Wendell,	Chas. D. Townsend.
1819	John Stearns,	Westel Willoughby,	Chas. D. Townsend,	John Downs.
1820	John Stearns,	Westel Willoughby,	Chas. D. Townsend,	John Downs.
1821	Samuel L. Mitchell,	Peter C. Adams,	Chas. D. Townsend,	John Downs.
1822	Samuel L. Mitchell,	Thomas Fuller,	Chas. D. Townsend,	T. Romeyn Beck.
1823	Alex. Coventry,	John H. Steele,	Chas. D. Townsend,	Jonathan Eights.
1824	Alex. Coventry,	John H. Steele,	Chas. D. Townsend,	Jonathan Eights.
1825	James R. Manley,	T. Romeyn Beck,	Platt Williams,	Jonathan Eights.
1826	James R. Manley,	T. Romeyn Beck,	Platt Williams,	Jonathan Eights.
1827	T. Romeyn Beck,	Laurens Hull,	Platt Williams,	Jonathan Eights.
1828	T. Romeyn Beck,	Laurens Hull,	Platt Williams,	Jonathan Eights.
1829	T. Romeyn Beck,	Henry Mitchell,	Joel A. Wing,	Jonathan Eights.
1830	Jonathan Eights,	Henry Mitchell,	Joel A. Wing,	Platt Williams.
1831	Jonathan Eights,	Thomas Spencer,	Joel A. Wing,	Platt Williams.
1832	Thomas Spencer,	Jas. McNaughton,	Joel A. Wing,	Platt Williams.
1833	Thomas Spencer,	Jas. McNaughton,	Joel A. Wing,	Platt Williams.
1834	John H. Steele,	Jas. McNaughton,	Joel A. Wing,	Platt Williams.
1835	John H. Steele,	Jas. McNaughton,	Joel A. Wing,	Platt Williams.
1836	Jas. McNaughton,	Samuel White,	Joel A. Wing,	Platt Williams.
1837	Jas. McNaughton,	Samuel White,	Peter Van O'Linda,	Platt Williams.
1838	Laurens Hull,	Sumner Ely,	Peter Van O'Linda,	Platt Williams.
1839	Laurens Hull,	Sumner Ely,	Peter Van O'Linda,	Platt Williams.
1840	Sumner Ely,	John B. Beck,	Peter Van O'Linda,	Platt Williams.
1841	John B. Beck,	William Taylor,	Peter Van O'Linda,	Platt Williams.
1842	William Taylor,	Joel A. Wing,	Peter Van O'Linda,	Platt Williams.
1843	Samuel White,	Joel A. Wing,	Peter Van O'Linda,	Platt Williams.
1844	Joel A. Wing,	Harman Van Dusen,	Peter Van O'Linda,	Platt Williams.
1845	James Webster,	Robert G. Frary,	Peter Van Buren,	Peter Van O'Linda.

Year.	*President.*	*Vice-President.*	*Secretary.*	*Treasurer.*
1846	John McCall,	Stephen Hasbrouck,	Peter Van Buren,	Peter Van O'Linda.
1847	Thos. W. Blatchford,	Alex. Thompson,	Peter Van Buren,	Peter Van O'Linda.
1848	Alex. H. Stephens,	Alex. Thompson,	Peter Van Buren,	Peter Van O'Linda.
1849	Alex. H. Stephens,	Alex. Thompson,	Peter Van Buren,	Peter Van O'Linda.
1850	Alex. Thompson,	Jenks S. Sprague,	Thomas Hun,	Peter Van O'Linda.
1851	Robert G. Frary,	Jenks S. Sprague,	Thomas Hun,	Peter Van O'Linda.
1852	Alonzo Clark,	Jenks S. Sprague,	Thomas Hun,	Peter Van O'Linda.
1853	Jenks S. Sprague,	Peter Van Buren,	James H. Armsby,	Peter Van O'Linda.
1854	Chas. R. Coventry,	Peter Van Buren,	Howard Townsend,	Peter Van O'Linda.
1855	Fr'k H. Hamilton,	Thomas Hun,	Howard Townsend,	Peter Van O'Linda.
1856	Alden March,	Chas. S. Goodrich,	Howard Townsend,	J.V.P.Quackenbush.
1857	Augustus Willard,	Thos. C. Brinsmade,	Sylves. D. Willard,	J.V.P.Quackenbush.
1858	T. C. Brinsmade,	Geo. W. Bradford,	Sylves. D. Willard,	J.V.P.Quackenbush.
1859	B. Fordyce Barker,	Daniel T. Jones,	Sylves. D. Willard,	J.V.P.Quackenbush.
1860	Daniel T. Jones,	Edward H. Parker,	Sylves. D. Willard,	J.V.P.Quackenbush.
1861	Edward H. Parker,	Andrew Van Dyck,	Sylves. D. Willard,	J.V.P.Quackenbush.
1862	Thomas Hun,	Daniel P. Bissell,	Sylves. D. Willard,	J.V.P.Quackenbush.
1863	Daniel P. Bissell,	Joel Foster,	Sylves. D. Willard,	J.V.P.Quackenbush.
1864	Frederick Hyde,	George J. Fisher,	Sylves. D. Willard.	J.V.P.Quackenbush.
1865	Henry W. Dean,	Jos. C. Hutchison,	Wm. H. Bailey,	J.V.P.Quackenbush.
1866	Jos. C. Hutchison,	Julian T. Williams,	Wm. H. Bailey,	J.V.P.Quackenbush.
1867	John P. Gray,	Lake I. Tefft,	Wm. H. Bailey,	J V.P.Quackenbush.
1868	J.V.P.Quackenbush,	James P. White,	Wm. H. Bailey,	John V. Lansing.
1869	James P. White,	George Burr,	Wm. H. Bailey,	John V. Lansing.
1870	S. O. Vander Poel,	Gilson A. Dayton,	Wm. H. Bailey,	John V. Lansing.
1871	William C. Wey,	Andr'w F. Doolittle,	Wm. H. Bailey,	Charles H. Porter.
1872	Cornelius R. Agnew,	B. F. Sherman,	Wm. H. Bailey,	Charles H. Porter.
1873	Edward M. Moore,	Francis Burdick,	Wm. H. Bailey,	Charles H. Porter.
1874	George J. Fisher,	Harvey Jewett,	Wm. H. Bailey,	Charles H. Porter.
1875	Thos. F. Rochester,	Ellsworth Eliot,	Edward R. Hun,	Charles H. Porter.
1876	E. R. Squibb,	J. V. Kendall,	Edward R. Hun,	Charles H. Porter.
1877	J. Foster Jenkins,	A. L. Saunders,	W. Manlius Smith,	Charles H. Porter.
1878	D.B. St.John Roosa,	Judson C. Nelson,	W. Manlius Smith,	Charles H. Porter.
1879	Henry D. Didama,	Nath. C. Husted,	W. Manlius Smith,	Charles H. Porter.
1880	William H. Bailey,	Abraham Jacobi,	W. Manlius Smith,	Charles H. Porter.
1881	Abraham Jacobi,	William Govan,	W. Manlius Smith,	Charles H. Porter.
1882	Harvey Jewett,	E. D. Ferguson,	W. Manlius Smith,	Charles H. Porter.
1883	Alex. Hutchins,	H. G. P. Spencer,	W. Manlius Smith,	Charles H. Porter.
1884	B. F. Sherman,	P. R. H. Sawyer,	W. Manlius Smith,	Cherles H. Porter.
1885	A. Vander Veer,	Alfred C. Post,	W. Manlius Smith,	Charles H. Porter.
1886	William S. Ely,	Sol. Van Etten,	W. Manlius Smith,	Charles H. Porter.
1887	Alfred L. Loomis,	A. M. Phelps,	W. Manlius Smith,	Charles H. Porter.
1888	Samuel B. Ward,	A. Walter Suiter,	W. Manlius Smith,	Charles H. Porter.
1889	Daniel Lewis,	Alfred Mercer,	Frederic C. Curtis,	Charles H. Porter.
1890	W. W. Potter,	L. S. Pilcher,	Frederic C. Curtis,	Charles H. Porter.
1891	A. Walter Suiter,	W. W. Crandall,	Frederic C. Curtis,	Charles H. Porter.
1892	Lewis S. Pilcher,	Henry L. Elsner,	Frederic C. Curtis,	Charles H. Porter.
1893	Herman Bendell,	C. L. Stiles,	Frederic C. Curtis,	Charles H. Porter.
1894	Geo. Henry Fox,	Frank S. Low,	Frederic C. Curtis,	Charles H. Porter.

OFFICERS, 1894.

PRESIDENT,
GEORGE HENRY FOX, New York.

VICE-PRESIDENT,
FRANK S. LOW, Pulaski.

SECRETARY,
FREDERIC C. CURTIS (17 Washington Ave.), Albany.

TREASURER,
CHARLES H. PORTER (103 Lancaster Street), Albany.

MEMBERS.

I. Delegates from County Medical Societies, etc.

(By-laws, Chap. I, Sec. 2.)

By a resolution of the Society, adopted in 1894, Presidents of County Medical Societies are admitted as Delegates during their terms of office.

Figures in parenthesis indicate when term expires.

Albany County (1897):
L. E. Blair, Albany,
Lorenzo Hale, "
H. E. Mereness, "
W. O. Stillman, "

Allegany County (1895):
H. A. Barney, Belmont.

Broome County (1895):
W. A. Moore, Binghamton.

Cattaraugus County (1897):
S. J. Mudge, Olean.

Cayuga County (1897):
C. O. Baker, Auburn.
F. H. Parker, "

Chautauqua County (1895):
Nelson G. Richmond, Fredonia.

Chemung County (1897):
John Moroney, Elmira.

Chenango County (1895):
G. O. Williams, Greene.

Clinton County (1895):
J. B. Ransom, Dannemora.

Columbia County (1895):
W. I. Gordon, Copake.

Cortland County (1895):
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Delaware County (1895):
H. A. Gates, Delhi.

Dutchess County (1897):
G. Huntington, La Grangeville,
David B. Ward, Poughkeepsie.

Erie County (1895):
William H. Bergtold, Buffalo,
William C. Callanan, "
Herman E. Hayd, "
Edward C. W. O'Brien, "
John J. Walsh, "
John H. Pryor, "

Essex County (1897):
Robert T. Saville, Mineville.

Franklin County (1895):
C. E. Pearl, North Bangor.

Fulton County (1897):
Frank Beebe, Johnstown.

Genesee County (1896):
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Greene County (1897):
E. E. Elliott, Catskill.

Herkimer County (1895):
W. D. Garlock, Little Falls.
Jefferson County (1897):
D. C. Rodenhurst, Philadelphia.
Kings County (1895):
Frank Baldwin, Brooklyn,
C. F. Barber, "
Homer L. Bartlett, Flatbush,
William Browning, Brooklyn,
G. R. Butler, "
H. B. Delatour, "
J. W. Hyde, "
Reuben Jeffery, "
George E. Law, "
J. A. McCorkle, "
J. C. MacEvitt, "
H. C. McLean, "
George McNaughton, "
Ernest Palmer, "
W. H. B. Pratt, "
A. J. C. Skeene, "
J. M. Van Cott, "
J. M. Winfield, "
Lewis County (1897):
C. P. Kirley, Lowville.
Livingston County (1896):
Clement C. Goodrich, Avon.
Madison County (1895):
C. B. Wilcox, Eastville.
Monroe County (1897):
H. S. Durand, Rochester,
Mrs. M. C. Potter, "
Frederick W. Zimmer, "
Montgomery County (1896):
C. F. Timmerman, Amsterdam.
New York County (1896):
Charles H. Avery, New York,
Joseph P. Bissell, "
Herman J. Boldt, "
A. H. Buckmaster, "
W. Franklin Chappell, "
Lewis A. Coffin, "
Carter S. Cole, "
Alexander Dallas, "
Theodore Dunham, "
George M. Edebohls, "
George T. Elliot, "
J. B. Emerson, "
Arthur L. Fisk, "
J. A. Fordyce, "
Landon Carter Gray, New York,
H. Newton Heineman, "
James E. Kelly, "
Frank N. Lewis, "
Edward N. Liell, "
T. Halstead Myers, "
William J. Morton, "
James E. Newcomb, "
James E. Nichols, "
W. O. Plympton, "
Barney Sachs, "
J. C. Smith, "
Edward W. Thompson, "
Wisner R. Townsend, "
C. A. Von Ramdohr, "
George T. Wetmore, "
Niagara County (1897):
F. J. Baker, Lockport,
C. N. Palmer, "
Oneida County (1897):
D. A. Barnum, Cassville,
J. G. Kilbourn, Utica,
L. Swartwout, Prospect.
Onondaga County (1897):
T. H. Halstead, Syracuse,
F. W. Sears, "
F. W. Slocumb, Camillus.
Ontario County (1895):
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Orange County (1897):
Wm. M. Cuddeback, Port Jervis,
J. B. Hulett, Middletown.
Orleans County (1896):
George J. Lund, Medina.
Oswego County (1896):
E. F. Marsh, Fulton,
J. K. Stockwell, Oswego.
Otsego County (1897):
H. Lathrop, Cooperstown,
W. H. Leonard, Worcester.
Putnam County (1897):
Austin LaMonte, Carmel.
Queens County (1897):
James S. Cooley, Glen Cove,
L. N. Lanehart, Hempstead,
C. G. J. Finn, "
Rensselaer County (1897):
R. Brinsmade Bontecou, Troy,
H. C. Gordinier, "
J. W. Morris, "

Richmond County (1897):
J. W. Wood, Port Richmond.
Rockland County (1895):
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St. Lawrence County (1895):
J. M. Mosher, Ogdensburg.
Saratoga County (1895):
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Schenectady County (1897):
Wm. T. Clute, Schenectady.
Schoharie County (1897):
E. O. Bruce, Hyndsville.
Schuyler County (1896):
S. B. Allen, Burdette.
Seneca County (1896):
— —
Steuben County (1897):
T. O. Burlison, Bath
C. S. Parkhill, Hornellsville.
Suffolk County (1895):
Samuel Blume, Riverhead.
Sullivan County (1897):
W. W. Appley, Cochecton.
Tioga County (1897):
D. S. Anderson, Owego.
Tompkins County (1897):
Chauncey P. Biggs, Ithaca.
Ulster County (1895):
Jacob Chambers, Kingston,
J. Hasbrouck, Port Ewen,
S. L. Dawes, Saugerties.
Warren County (1897):
W. R. Adamson, Lake George.
Washington County (1895):
Wm. B. Melick, Fort Edward.
Wayne County (1895):
J. N. Arnold, Clyde.
Westchester County (1897):
Newton F. Curtis, White Plains,
H. E. Schmid, White Plains,
A. O. Snowden, Peekskill.
Wyoming County (1896):
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Yates County (1896):
Charles Doubleday.
New York Academy of Medicine (1897):
Hobart Cheesman, New York,
Henry C. Coe, "
Henry D. Chapin, "
Wm. A. Ewing, New York,
Joseph D. Bryant, "
Medical Faculty, New York City University (1895):
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Bellevue Hospital Medical College (1895):
— —
College of Physicians and Surgeons, New York (1896):
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New York Post-Graduate Medical School (1896):
Reynold W. Wilcox, New York.
New York Polyclinic (1897):
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Long Island College Hospital (1896):
J. H. Raymond, Brooklyn.
Medical Department, Union University (1897):
Joseph D. Craig, Albany.
Medical Department, University of Buffalo (1896):
Matthew D. Mann, Buffalo.
Medical Department, Niagara University (1896):
Herman Mynter, Buffalo.
College of Medicine, Syracuse University (1896):
A. B. Miller, Syracuse.
Rochester Pathological Society (1896):
T. Oliver Tait, Rochester.
Medical Association of Northern New York (1895):
J. A. Grant, Malone.
Utica Medical Library Association (1896):
D. C. Dye, Utica.
Elmira Academy of Medicine (1895):
G. V. R. Merrill, Elmira.
Utica Medical Club (1895):
W. A. Burgess, Utica.
Society of Physicians of Canandaigua (1896):
Albert L. Beahan, Canandaigua
Practitioners' Society of Rochester:
Eveline P. Ballintine, Rochester.
Syracuse Academy of Medicine:
E. L. Mooney, Syracuse.

II. Permanent Members.

For regulations with regard to permanent members, their election, initiation fees, annual dues, etc., see page 2 of *Transactions*. Permanent members who neglect to pay their dues for three years are dropped from the following list till arrearages are paid. (By-laws, Chapter VI, Section 5.)

Permanent members, of the age of sixty or upward, who have been permanent members ten years, on making application to the Secretary, the application being accompanied with the Treasurer's certificate that all dues have been paid up to that date, are placed on the list of *Retired Permanent Members*, and are relieved from further payment of annual dues. (Chapter I, Section 4, of By-laws.) The names of Retired Permanent Members are printed in the following list in *italics*, with year of retirement.

Year of Election.			County.
1894	W. R. Adamson,	Lake George,	Warren
1880	H. R. Ainsworth,	Addison,	Steuben
1887	C. S. Allen,	Greenbush,	Rensselaer
1885	Eli Allison,	Wayne,	Steuben
1892	Edward B. Angell,	Rochester,	Monroe
1888	Moses T. Babcock,	Hammondsport,	Steuben
1888	Gorham Bacon,	New York,	New York
1858	*Charles G. Bacon* (1884),	Fulton,	Oswego
1857	*M. M. Bagg*, (1883)	Utica,	Oneida
1891	F. D. Bailey,	Brooklyn,	Kings
1889	William C. Bailey,	Albion,	Orleans
1864	William H. Bailey,	Albany,	Albany
1891	Lewis Balch,	Albany,	Albany
1859	*John Ball* (1883),	Brooklyn,	Kings
1893	O. D. Ball,	Albany,	Albany
1878	*N. H. Ballou* (1887),	Lansingburgh,	Rensselaer
1889	L. Bolton Bangs,	New York,	New York
1867	*Lyman Barton* (1883),	Willsborough,	Essex
1891	Bernard Bartow,	Buffalo,	Erie
1884	M. L. Bates,	Canaan 4-Corners,	Columbia
1876	Eugene Beach,	Gloversville,	Fulton
1866	*A. N. Bell* (1881),	Brooklyn,	Kings
1887	Herman Bendell,	Albany,	Albany
1890	Albert C. Benedict,	Yonkers,	Westchester
1889	George E. Benson,	Hudson,	Columbia
1885	John M. Bigelow,	Albany,	Albany
1862	*John Boardman* (1892),	Buffalo,	Erie
1861	Reed B. Bontecou,	Troy,	Rensselaer
1892	Wilbur H. Booth,	Utica,	Oneida
1891	F. H. Bosworth,	New York,	New York
1891	Louis Boudrias,	Cohoes,	Albany
1888	C. W. Bourne,	Hamburgh,	Erie
1892	Israel C. Bourne,	Masonville,	Delaware
1888	J. P. Boyd,	Albany,	Albany
1874	Elisha H. Bridges,	Ogdensburg,	St. Lawrence

Year of Election.			County.
1890	A. N. Brockway,	New York,	New York
1894	C. W. M. Brown,	Elmira,	Chemung
1894	U. H. Brown,	Syracuse,	Onondaga
1883	A. J. Browne,	Newport,	Herkimer
1890	Charles E. Bruce,	New York,	New York
1888	E. F. Brush,	Mt. Vernon,	Westchester
1868	*Israel I. Buckbee* (1882),	Fonda,	Montgomery
1887	L. Duncan Bulkley,	New York,	New York
1884	John E. Burdick,	Johnstown,	Fulton
1894	Daniel S. Burr,	Binghamton,	Broome
1876	J. H. Hobart Burge,	Brooklyn,	Kings
1889	Stephen Smith Burt,	New York,	New York
1875	M. H. Burton,	Troy,	Rensselaer
1894	Glenworth R. Butler,	Brooklyn,	Kings
1892	Peter A. Callan,	New York,	New York
1885	*A. M. Campbell* (1894),	Mt. Vernon,	Westchester
1892	Frank B. Carpenter,	New York,	New York
1884	H. W. Carpenter,	Oneida,	Madison
1884	S. S. Cartwright,	Roxbury,	Delaware
1890	Charles Cary,	Buffalo,	Erie
1866	*J. E. Casey* (1890),	Mohawk,	Herkimer
1879	Walter B. Chase,	Brooklyn,	Kings
1889	E. D. Chipman,	Saugerties,	Ulster
1886	Charles H. Chubb,	Palenville,	Greene
1868	*Alonzo Churchill* (1884),	Utica,	Oneida
1889	John H. Cipperly,	Troy,	Rensselaer
1893	Edward Clark,	Buffalo,	Erie
1854	*Thomas F. Cock* (1881),	New York,	New York
1894	Henry C. Coe,	New York,	New York
1891	Philander Collard,	Sing Sing,	Westchester
1867	*Darwin Colvin* (1884),	Clyde,	Wayne
1890	William J. Conklin,	Fishkill,	Dutchess
1888	D. H. Cook,	Albany,	Albany
1888	J. Leonard Corning,	New York,	New York
1891	Charles N. Cox,	New York,	New York
1890	Herman Craft,	Stone Ridge,	Ulster
1867	*H. S. Crandall* (1883),	Leonardsville,	Madison
1881	W W. Crandall,	Wellsville,	Allegany
1890	Floyd S. Crego,	Buffalo,	Erie
1882	Joseph P. Creveling,	Auburn,	Cayuga
1891	Charles W. Crispell,	Rondout,	Ulster
1891	Alexander H. Crosby,	Lowville,	Lewis
1890	Lemuel Cross,	Schoharie,	Schoharie
1890	C. M. Culver,	Albany,	Albany
1889	Andrew F. Currier,	New York,	New York
1891	James H. Curry,	Shrub Oak,	Westchester
1882	F. C. Curtis,	Albany,	Albany
1885	John G. Curtis,	New York,	New York
1894	W. S. Daly,	Ogdensburg,	St. Lawrence

Year of Election.			County.
1891	Charles L. Dana,	New York,	New York
1890	Archibald Dann,	Rochester,	Monroe
1889	Thomas S. Dawes,	Saugerties,	Ulster
1891	Henry H. Deane,	Watertown,	Jefferson
1889	Francis Delafield,	New York,	New York
1893	W. B. DeGarmo,	New York,	New York
1894	H. B. Delatour,	Brooklyn,	Kings
1888	Charles A. Dewey,	Rochester,	Monroe
1892	Charles E. Douglass,	Lowville,	Lewis
1890	O. B. Douglas,	New York,	New York
1894	William E. Douglas,	Middletown,	Orange
1894	Frank F. Dow,	Rochester,	Monroe
1878	H. G. Dubois,	Camden,	Oneida
1886	Joseph W. Eddy,	Oswego,	Oswego
1885	I. C. Edson,	Windsor,	Broome
1893	John Edwards,	Gloversville,	Fulton
1870	*Ellsworth Eliot* (1887),	New York,	New York
1892	Henry L. Elsner,	Syracuse,	Onondaga
1881	Smith Ely,	Newburgh,	Orange
1875	William S. Ely,	Rochester,	Monroe
1892	Z. Taylor Emory,	Brooklyn,	Kings
1871	Thomas Addis Emmet,	New York,	New York
1891	George A. Evans,	Brooklyn,	Kings
1871	*Nelson Fanning* (1882),	Catskill,	Greene
1889	Jas. D. Featherstonhaugh,	Cohoes,	Albany
1892	Mahlon Felter,	Troy,	Rensselaer
1890	E. D. Fisher,	New York,	New York
1891	S. Z. Fisher,	Little Valley,	Cattaraugus
1888	Henry Flood,	Elmira,	Chemung
1889	M. B. Folwell,	Buffalo,	Erie
1888	Willis E. Ford,	Utica,	Oneida
1886	Amos Fowler,	Albany,	Albany
1889	George R. Fowler,	Brooklyn,	Kings
1882	George H. Fox,	New York,	New York
1880	N. H. Freeland,	Tarrytown,	Westchester
1862	*Samuel H. Freeman* (1886),	Albany,	Albany
1891	Crawford E. Fritts,	Hudson,	Columbia
1893	E. D. Fuller,	Utica,	Oneida
1880	P. R. Furbeck,	Gloversville,	Fulton
1892	W. C. Gallagher,	Slaterville,	Tompkins
1886	William H. Gedney,	Milton,	Ulster
1885	John Gerin,	Auburn,	Cayuga
1887	Arpad G. Gerster,	New York,	New York
1884	V. P. Gibney,	New York,	New York
1893	W. M. Gibson,	Utica,	Oneida
1886	Theron Z. Gibbs,	Fort Ann,	Washington
1889	J. H. Glass,	Utica,	Oneida
1891	D. A. Gleason,	Oxford,	Chenango
1883	I. N. Goff,	Cazenovia,	Madison

Year of Election.			County.
1892	D. H. Goodwillie,	New York,	New York
1894	George Graves,	Herkimer,	Herkimer
1881	Henry Gray,	Greenwich	Washington
1887	Tobias J. Green,	Mexico,	Oswego
1888	Alexander Hadden,	New York,	New York
1887	William Hailes,	Albany,	Albany
1890	Charles W. Hamlin,	Middleville,	Herkimer
1889	Graeme M. Hammond,	New York,	New York
1877	*T. Hammond* (1889),	Dover Plains,	Dutchess
1889	H. T. Hanks,	New York,	New York
1892	John B. Harvie,	Troy,	Rensselaer
1892	Cornelius V. Hasbrouck,	Rosendale,	Ulster
1894	Herman E. Hayd,	Buffalo,	Erie
1880	C. R. Heaton,	Owego,	Tioga
1889	John L. Heffron,	Syracuse,	Onondaga
1890	Neil J. Hepburn,	New York,	New York
1889	E. M. Hermance,	Yonkers,	Westchester
1892	C. B. Herrick,	Troy,	Rensselaer
1894	Wallace J. Herriman,	Rochester,	Monroe
1890	Amanda S. Hickey,	Auburn,	Cayuga
1892	Urban G. Hitchcock,	New York,	New York
1886	Benjamin L. Holt,	Penn Yan,	Yates
1885	George G. Hopkins,	Brooklyn,	Kings
1885	H. R. Hopkins,	Buffalo,	Erie
1874	*B. L. Hovey* (1885),	Rochester,	Erie
1891	Eugene H. Howard,	Rochester,	Monroe
1892	W. R. Howard,	Rochester,	Monroe
1886	Lucien Howe,	Buffalo,	Erie
1891	John T. Howell,	Newburgh,	Orange
1893	Henry Hun,	Albany,	Albany
1854	Thomas Hun,	Albany,	Albany
1892	Joseph H. Hunt,	Brooklyn,	Kings
1889	Alexander S. Hunter,	New York,	New York
1878	James C. Hutchinson,	Troy,	Rensselaer
1894	Joel W. Hyde,	Brooklyn,	Kings
1893	George T. Jackson,	New York,	New York
1875	Abraham Jacobi,	New York,	New York
1892	Nathan Jacobson,	Syracuse,	Onondaga
1893	W. W. Jamieson,	New Bremen,	Lewis
1893	J. M. Jenkins,	Auburn,	Cayuga
1892	D. D. Jennings,	New York,	New York
1886	Charles Jewett,	Brooklyn,	Kings
1882	Wm. H. Johnston,	Port Leyden,	Lewis
1890	Herbert G. Jones,	Utica,	Oneida
1856	James V. Kendall,	Baldwinsville	Onondaga
1891	Osman F. Kinloch,	Troy,	Rensselaer
1880	Herman Knapp,	New York,	New York
1857	*Jonathan Kneeland* (1881),	South Onondaga,	Onondaga
1893	Horace Lathrop,	Cooperstown,	Otsego

Year of Election.			County.
1887	W. S. Layman,	Schoharie,	Schoharie
1890	Dwight M. Lee,	Oxford,	Chenango
1890	C. M. Lefler,	Gloversville,	Fulton
1893	W. H. Leonard,	Worcester,	Otsego
1875	Joseph Lewi,	Albany,	Albany
1890	Maurice J. Lewi,	New York,	New York
1884	Daniel Lewis,	New York,	New York
1892	Samuel Lloyd,	New York,	New York
1885	J. D. Lomax,	Troy,	Rensselaer
1878	A. J. Long,	Greenwich,	Washington
1892	Eli H. Long,	Buffalo,	Erie
1886	Alfred L. Loomis,	New York,	New York
1891	Henry P. Loomis,	New York,	New York
1882	E. H. Loughran,	Kingston,	Ulster
1871	R. Loughran,	Kingston,	Ulster
1871	Frank S. Low,	Pulaski,	Oswego
1892	George J. Lund,	Medina,	Orleans
1891	Carlos F. MacDonald,	New York,	New York
1894	Frank Madden,	Plattsburgh,	Clinton
1890	M. L. Mallory,	Rochester,	Monroe
1890	William Maddren,	Brooklyn,	Kings
1892	John M. Malony,	Dundee,	Yates
1893	A. H. Mambert,	Rondout,	Ulster
1891	Frank W. Marlow,	Syracuse,	Onondaga
1888	F. E. Martindale,	Port Richmond,	Richmond
1889	A. Ross Matheson,	Brooklyn,	Kings
1879	Arthur Mathewson,	Brooklyn,	Kings
1892	Charles P. McCabe,	Greenville,	Greene
1894	George M. McCombs,	Clayton,	Jefferson
1894	J. A. McCorkle,	Brooklyn,	Kings
1890	William P. McLaury,	Catskill,	Greene
1872	Leroy McLean,	Troy,	Rensselaer
1884	Alfred Mercer,	Syracuse,	Onondaga
1888	C. S. Merrill,	Albany,	Albany
1892	Willy Meyer,	New York,	New York
1888	Lewis H. Miller,	Brooklyn,	Kings
1892	Theodore D. Mills,	Middletown,	Orange
1886	W. F. Mittendorf,	New York,	New York
1891	Joseph Moffatt,	Washingtonville,	Orange
1892	Robert T. Morris,	New York,	New York
1894	E. W. Mulligan,	Rochester,	Monroe
1892	Herman Mynter,	Buffalo,	Erie
1893	W. J. Nellis,	Albany,	Albany
1892	Albert S. Newcomb,	New York,	New York
1892	T. B. Nichols,	Plattsburgh,	Clinton
1870	Henry D. Noyes,	New York,	New York
1880	D. V. O'Leary,	Albany,	Albany
1890	George H. Oliver,	Dickinson Centre,	Franklin
1891	Darius S. Orton,	Northampton,	Fulton

Year of Election.			County.
1892	Andrew Otterson,	Brooklyn,	Kings
1890	May R. Owen,	Brooklyn,	Kings
1892	R. C. M. Page,	New York,	New York
1893	Albert H. Palmer,	Marlborough,	Ulster
1891	Henry C. Palmer,	Utica,	Oneida
1892	Roswell Park,	Buffalo,	Erie
1858	Edward H. Parker,	Poughkeepsie,	Dutchess
1863	*W. H. H. Parkhurst* (1883),	Frankfort,	Herkimer
1873	*John Parr* (1886),	Buel,	Montgomery
1887	Edward L. Partridge,	New York,	New York
1890	William L. Pearson,	Schenectady,	Schenectady
1893	O. W. Peck,	Oneonta,	Otsego
1881	*S. H. Peck* (1892),	Ithaca,	Tompkins
1893	T. K. Perry,	Albany,	Albany
1891	Wendell C. Phillips,	New York,	New York
1890	Henry T. Peirce,	New York,	New York
1889	F. M. Perine,	Dansville,	Livingston
1892	Albert E. Persons,	Buffalo,	Erie
1883	A. M. Phelps,	New York,	New York
1880	Henry G. Piffard,	New York,	New York
1891	Lewis S. Pilcher,	Brooklyn,	Kings
1889	Burke Pillsbury,	Middletown,	Orange
1894	Milton G. Planck,	Schenectady,	Schenectady
1880	J. O. Polhemus,	Nyack,	Rockland
1893	G. P. K. Pomeroy,	Stuyvesant,	Columbia
1886	Oren D. Pomeroy,	New York,	New York
1881	Thomas R. Pooley,	New York,	New York
1869	Charles H. Porter,	Albany,	Albany
1891	J. Densmore Potter,	Delphi,	Onondaga
1883	W. W. Potter,	Buffalo,	Erie
1893	J. W. Poucher,	Poughkeepsie,	Dutchess
1892	Seneca D. Powell,	New York,	New York
1891	H. DeV. Pratt, Jr.,	Elmira,	Chemung
1879	Jonathan S. Prout,	Brooklyn,	Kings
1877	A. E. M. Purdy,	New York,	New York
1894	Hamilton S. Quin,	Utica,	Oneida
1894	C. M. Rexford,	Watertown,	Jefferson
1889	Clarence C. Rice,	New York,	New York
1872	Charles E. Rider,	Rochester,	Monroe
1892	Wheelock Rider,	Rochester,	Monroe
1891	Frank W. Ring,	New York,	New York
1882	J. O. Roe,	Rochester,	Monroe
1878	D. B. St. John Roosa,	New York,	New York
1891	Henry Root,	Whitehall,	Washington
1887	Zotique Rousseau,	Troy,	Rensselaer
1891	Thomas E. Satterthwaite,	New York,	New York
1886	Lewis A. Sayre,	New York,	New York
1885	George Seymour,	Utica,	Oneida
1893	W. W. Seymour,	Troy,	Rensselaer

Year of Election.			County.
1871	B. F. Sherman,	Ogdensburg,	St. Lawrence
1884	Samuel Sherwell,	Brooklyn,	Kings
1870	George F. Shrady,	New York,	New York
1888	A. R. Simmons,	Utica,	Oneida
1878	George C. Smith,	Rondout,	Ulster
1893	H. Lyle Smith,	Hudson,	Columbia
1867	*Wm. Manlius Smith* (1889),	Syracuse,	Onondaga
1873	*H. G. P. Spencer* (1891),	Watertown,	Jefferson
1886	James D. Spencer,	Watertown,	Jefferson
1884	C. S. Starr,	Rochester,	Monroe
1890	B. U. Steenberg,	Albany,	Albany
1892	William Stevens,	New York,	New York
1879	C. L. Stiles,	Owego,	Tioga
1880	E. V. Stoddard,	Rochester,	Monroe
1889	Charles Stover,	Amsterdam,	Montgomery
1888	W. H. Stuart,	Norwich,	Chenango
1882	Frederic R. Sturgis,	New York,	New York
1885	A. Walter Suiter,	Herkimer,	Herkimer
1892	Peter L. Suits,	Tribe's Hill,	Montgomery
1869	*William T. Swart* (1881),	Canandaigua,	Ontario
1893	Robert E. Talbot,	New York,	New York
1865	*Isaac E. Taylor* (1883),	New York,	New York
1886	Robert Thomson,	Troy,	Rensselaer
1888	D. M. Totman,	Syracuse,	Onondaga
1893	Franklin Townsend, Jr.,	Albany,	Albany
1891	Louis A. Tourtellot,	Utica,	Oneida
1886	Richard D. Traver,	Troy,	Rensselaer
1889	Willis G. Tucker,	Albany,	Albany
1880	R. K. Tuthill,	Poughkeepsie,	Dutchess
1892	Francis Valk,	New York,	New York
1889	S. O. Vander Poel,	New York,	New York
1876	Albert Vander Veer,	Albany,	Albany
1876	Solomon Van Etten,	Port Jervis,	Orange
1886	Eugene Van Slyke,	Albany,	Albany
1892	J. S. Van Vechten,	Chateaugay,	Franklin
1890	W. A. Vincent,	Three Mile Bay,	Jefferson
1892	Ralph Waldo,	New York,	New York
1886	Theodore C. Wallace,	Cambridge,	Washington
1873	R. H. Ward,	Troy,	Rensselaer
1883	Samuel B. Ward,	Albany,	Albany
1885	John S. Warren,	New York,	New York
1883	David Webster,	New York,	New York
1881	Robert F. Weir,	New York,	New York
1891	Frank E. West,	Brooklyn,	Kings
1894	Hamilton D. Wey,	Elmira,	Chemung
1869	William C. Wey,	Elmira,	Chemung
1846	*John H. Wheeler* (1883),	Athens,	Greene
1889	John T. Wheeler,	Chatham,	Columbia
1883	J. W. Whitbeck,	Rochester,	Monroe

Year of Election.			County.
1887	Jarvis S. Wight,	Brooklyn,	Kings
1892	Robert J. Wilding,	Malone,	Franklin
1883	C. E. Willard,	Catskill,	Greene
1893	H. T. Williams,	Rochester,	Monroe
1865	*Julien T. Williams* (1880),	Dunkirk,	Chautauqua
1894	Claude Wilson,	Utica,	Oneida
1886	Thomas Wilson,	Claverack,	Columbia
1889	Gustavus S. Winston,	New York,	New York
1881	C. E. Witbeck,	Cohoes,	Albany
1883	L. D. Witherill,	Union,	Broome
1892	G. H. Witter,	Wellsville,	Allegany
1889	R. A. Witthaus,	New York,	New York
1887	W. Gill Wylie,	New York,	New York

III. Non-resident Members.

(Chapter I. Sec. 4, last paragraph, of the By-laws.)

Year of Election.

1884 J. Q. Adams, Pasadena, Cal.
1864 E. M. Alba, St. Augustine, Fla.
1891 Orville C. Baker, Brandon, Vt.
1862 Joseph Beattie, Richmond, Va.
1862 H. A. Carrington, New Haven, Connecticut

Year of Election.

1882 Lucius E. Felton, Hanford, Cal.
1857 Sanford B. Hunt, Newark, N. J.
1869 Jas. B. Murdoch, Pittsburg, Pa.
1875 J. H. Pooley, Columbus, Ohio
1872 Arthur S. Wolff, Brownsville, Texas

IV. Honorary Members.

Year of Election.

1889 Francis Bacon, New Haven, Connecticut
1888 B. F. Baer, Philadelphia, Pa.
1882 R. Bartholow, Philadelphia, Pa.
1880 J. S. Billings, U. S. Army
1862 H. Bronson, New Haven, Conn.
1880 J. B. Brown, U. S. Army
1877 W. A. F. Brown, Dumfries, Scotland
1886 E. N. Brush, Philadelphia, Pa.
1884 W. G. Brownson, New Canaan, Connecticut
1881 J. C. Bucknill, London, Eng.
1877 S. C. Busey, Washington, D. C.
1855 H. A. Buttolph, Short Hills, New Jersey
1894 Arthur T. Cabot, Boston, Mass.
1885 T. S. Clouston, Edinburgh, Scotland
1875 J. M. DaCosta, Philadelphia, Pa.
1866 N. S. Davis, Chicago, Ill.

Year of Election.

1892 W. E. B. Davis, Rome, Ga.
1875 F. Dichiara, Palermo, Italy
1863 P. W. Ellsworth, Hartford, Connecticut
1890 G. J. Engelmann, St. Louis, Missouri
1888 G. E. Fenwick, Montreal, Can.
1861 W. Frazer, Montreal, Can.
1883 Wm. Goodell, Philadelphia, Pennsylvania
1887 J. A. S. Grant, Cairo, Egypt
1875 E. H. Gregory, St. Louis, Mo.
1887 A. P. Grinnell, Burlington, Vt.
1886 T. Hansen, Copenhagen, Denmark
1889 Reginald Harrison, Liverpool, England
1860 E. Hart, London, England
1879 C. Heath, London, England
1894 O. E. Herrick, Grand Rapids, Michigan

Year of Election.
1882 C. N. Hewitt, Red Wing, Minn.
1891 W. H. Hingston, Montreal, Canada
1877 W. S. Hopkins, Vergennes, Vt.
1854 O. P. Hubbard, Hanover, New Hampshire
1857 H. J. Hunter, Sheffield, Eng.
1891 J. Nevins Hyde, Chicago, Ill.
1870 Ralph Isham, Chicago, Ill.
1863 T. Jennings, Nashville, Tenn.
1887 E. Landolt, Paris, France.
1870 H. M. Knight, Lakeville, Conn.
1873 H. C. Lombard, Geneva, Switzerland
1871 W. McCollum, Brooklyn, N. Y.
1892 Lewis S. McMurty, Louisville, Kentucky
1872 R. McNamara, Dublin, Ireland
1889 Howard Marsh, London, Eng.
1879 L. A. Mercier, Paris, France
1877 S. Weir Mitchell, Philadelphia, Pennsylvania
1891 E. E. Montgomery, Phila., Pa.
1894 J. H. Packard, Phila., Pa.
1889 Wm. Pepper, Philadelphia, Pa.
1891 Joseph Price, Philadelphia, Pa.
1852 Samuel S. Purple, New York
1892 Chas. A. L. Reed, Cincinnati, O.
1882 Sidney Ringer, London, Eng.

Year of Election.
1875 Benjamin W. Richardson, London, Eng.
1883 C. L. Robertson, London, Eng.
1892 Jas. F. W. Ross, Toronto, Can.
1889 Max Schede, Hamburg, Germany
1888 F. J. Shepherd, Montreal, Can.
1866 Albert Smith, Petersboro, N. H.
1894 George M. Sternberg, Washington, D. C.
1860 Alfred Stillé, Philadelphia, Pa.
1873 R. Stokes, Dublin, Ireland
1894 I. S. Stone, Washington, D. C.
1886 L. Tait, Birmingham, Eng.
1891 W. H. Taylor, Cincinnati, O.
1870 W. H. Thayer, Brooklyn, N. Y.
1875 J. M. Toner, Washington, D. C.
1873 T. J. Turner, U. S. Navy
1872 R. Virchow, Berlin, Germany
1877 L. de Wecker, Paris, France
1874 T. S. Wells, London, Eng.
1885 J. T. Whitaker, Cincinnati, O.
1888 D. M. Wilcox, Farmington, Utah
1891 H. C. Wood, Philadelphia, Pa.
1862 A. Woodward, Franklin, Connecticut
1885 T. G. Wormley, Phila., Pa.
1871 W. Worthington, W. Chester, Pa.
1892 A. H. Wright, Toronto, Can.

PERSONS ELIGIBLE TO MEMBERSHIP.

I. Eligible to Permanent Membership.

Eligibility to permanent membership is secured by service as a delegate at two annual meetings of this Society. Only members of county medical societies can become permanent members. Those eligible to permanent membership who desire to become members, should make written application to the Secretary. (By-laws, Chap. I, Sec. 4, and Chap. VI, Sec. 3.)

Became eligible in 1894 : *Albany county*, F. L. Classen, W. G. Macdonald, T. F. C. Van Allen, A. T. Van Vranken, Samuel R. Morrow ; *Cayuga county*, William S. Cheesman ; *Chautauqua county*, Nelson G. Richmond ; *Chenango county*, George O. Williams ; *Columbia county*, W. I. Gordon ; *Erie county*, Ernest Wende, Wm. C. Callanan, John J. Walsh ; *Fulton county*, Frank Beebe ; *Kings county*, Calvin F. Barber, Reuben Jeffery, George E. Law, Joshua M. Van Cott, James McF. Winfield ; *Erie county*, Eveline P. Ballintine ; *New York county*, Charles H. Avery, Herman J. Boldt, A. H. Buckmaster, Lewis A. Coffin, Carter S. Cole, Alexander Dallas, George M. Edebohls, Landon Carter Gray, Edward N. Liell, T. Halsted Myers, James

E. Newcomb, James E. Nichols, J. C. Smith, George T. Wetmore, Hobart Cheesman, Reynold W. Wilcox ; *Onondaga county*, J. W. Brown, A. B. Miller ; *Ontario county*, Albert L. Beahan ; *Orange county*, Wm. L. Cuddeback ; *Putnam county*, Austin La Monte ; *Queens county*, Louis N. Lanehart, John Mann ; *Richmond county*, J. Walter Wood; *Schenectady county*, William T. Clute ; *Steuben county*, C. S. Parkhill ; *Ulster county*, Josiah Hasbrouck, Jr.; *Washington county*, G. H. Whitcomb ; *Westchester county*, Stuart B. Carlisle.

II. Eligible to Honorary Membership.

Only physicians residents of other States or foreign countries, not exceeding six in number in one year, can be elected Honorary Members, and they must have been nominated at a previous annual meeting.

Made eligible in 1894 : George H. Rohé, Catonsville, Maryland.

Previously eligible : 1892, J. Lee McComas, Oakland, Md.; Mordecai Price, Philadelphia, Pa.; E. L. Shurly, Ann Arbor, Mich.; Heneage Gibbes, Ann Arbor, Mich.; 1889, Lennox Browne, London, Eng.; 1887, H. C. Allchin, London, Eng.; 1880, W. Carpenter, Burlington, Vt.; 1871, J. J. H. Love, Montclair, N. J.; 1868, W. Livingston, St. Johns, N. B.; 1863, H. G. Stevens, St. Albans, Vt.; Ralph Deming, Litchfield, Conn.

COUNTY MEDICAL SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF ALBANY.

(Organized in 1806.)

MEETINGS.— Annual, second Tuesday in May; semi-annual, second Tuesday in October. Stated meetings are held Wednesday evening at Alumni Hall, Albany Medical College, at least once a month, from October to May.

Officers. (May, 1894.)

O. D. Ball, *President.* Robert Babcock, *Vice-President.*
J. W. Droogan, *Secretary.* W. H. Happel, *Treasurer.*

Censors: H. Bendell, G. E. Lochner, W. H. Murray, C. H. Moore, M. J. Dwyer.

Delegates to State Medical Society: L. Hale, H. E. Mereness, W. O. Stillman, L. E. Blair.

Members.

(Where the town is not mentioned Albany is to be understood.)

H. C. Abrams, Newtonville
J. L. Archambeault, Cohoes
Robert Babcock, 59 Eagle st
Theodore P. Bailey, 95 Eagle st
Wm. H. Bailey, 1 Washington av
Lewis Balch, 14 Washington av
O. D. Ball, 691 Broadway
James F. Barker, 54 Clinton av
E. A. Bartlett, 20 S. Hawk
Hiram Becker, New Salem
Thomas Beckett, 276 Washington av
Herman Bendell, 178 State st
J. M. Bigelow, 52 Eagle st
L. E. Blair, 204 State st
J. H. Blatner, 132 Hudson av
A. J. Blessing, 109 Grand st
L. Boudrias, 18 Seneca st., Cohoes
James P. Boyd, 152 Washington av
James E. Brennan, 45 Myrtle av
J. C. Brown, 92 Eagle st
A. S. Capron, 66 Westerlo st
T. L. Carroll, 296 Lark st
Daniel C. Case, Slingerlands
H. S. Case, 136 Madison av
R. D. Clark, 66 Eagle st
F. L. Classen, 34 Trinity Place
E. V. Colbert, 64 Hudson av
Walter H. Conley, 184 Second st
D. H. Cook, 264 Clinton av
John L. Cooper, 86 Clinton av
Joseph D. Craig, 12 Ten Broeck st
C. H. Crawford, 216 Hudson av
Hiram Crounse, Clarksville
Jesse Crounse, Altamont
C. M. Culver, 36 Eagle st
F. C. Curtis, 17 Washington av
J. R. Davidson, South Bethlehem
C. E. Davis, 91½ Hudson av
A. DeGraff, Guilderland
G. R. DeSilva, Preston Hollow
J. W. Droogan, 17 Ash Grove Place
Mary Dubois, 192 Hamilton st
M. J. Dwyer, 3 Lancaster st
Noah L. Eastman, 427 Clinton av
G. E. Elmendorf, Alcove
J. D. Featherstonhaugh, Cohoes
P. E. Fennelly, West Troy
Frank H. Fisk, 1 Clinton Square
Amos Fowler, 29 Second st
S. H. Freeman, 77 Columbia st
W. J. Goewey, 225 Hamilton st
L. C. B. Graveline, 181 Madison av
F. R. Greene, 566 Central av
J. S. Guinan, 97 Lark st

Wm. Hailes, Jr., 197 Hamilton st
Edwin Haines, South Westerlo
Lorenzo Hale, 214 Clinton av
W. H. Happle, 322 S. Pearl st
E. C. Hallenbeck, Bethlehem Centre
J. M. Haskell, Bath-on-the-Hudson
J. U. Haynes, 76 Remsen st., Cohoes
R. A. Heenan, 8 Trinity Place
Thomas Helme, McKownsville
John V. Hennessy, 137 N. Pearl st
G. W. Holding, West Troy
D. W. Houston, Cohoes
Alfred B. Huested, State cor. Eagle st
Henry Hun, 149 Washington av
Thomas Hun, 33 Elk st
F. M. Joslin, Voorheesville
P. J. Keegan, 48 Clinton av
W. F. Kernan, 37 S. Ferry st
Uriah B. La Moure, 90 Hudson av
Louis Le Brun, 78 S. Ferry st
George G. Lempe, 57 Eagle st
Joseph Lewi, 94 Westerlo st
W. G. Lewi, 94 Westerlo st
G. E. Lochner, 1 S. Hawk st
George E. Lyon, West Troy
John D. McAllister, 78 Hudson av
C. C. McCulloch, 351 S. Pearl st
W. G. Macdonald, 27 Eagle st
A. McFarlane, 239 Hamilton st
M. McHarg, 787 Madison av
H. G. McNaughton, 3 S. Hawk st
Wm. McNaughton, West Troy
H. E. Mereness, 184 State st
C. S. Merrill, 23 Washington av
Howard Miller, 25 Elberon Place
J. H. Mitchell, Cohoes
J. D. Montmarquet, Cohoes
C. H. Moore, 23 Washington av
F. D. Morrill, 74 Westerlo st
Samuel R. Morrow, 29 S. Hawk st
Frank G. Mosher, Coeymans
G. T. Moston, 626 Central av
George S. Munson, 30 Eagle st
Wm. H. Murray, 269 Lark st
T. W. Nellis, 44 Eagle st
W. J. Nellis, 44 Eagle st
L. H. Neuman, 104 Hudson av
G. H. Newcomb, 106 Chestnut st
D. V. O'Leary, 12 Ash Grove Place
Howard S. Paine, 105 State st
G. W. Papen, 268 Madison ave
G. Upton Peltier, Cohoes
T. Kirk Perry, 174 Second st
Samuel Peters, Cohoes
Charles H. Porter, 103 Lancaster st
Alonzo F. Powell, Coeymans
W. L. Purple, 46 Second st
W. H. T. Reynolds, 70 S. Hawk st
Arthur G. Root, 46 Eagle st
J. W. Ross, Cohoes
W. F. Robinson, 59 Washington av
W. B. Rossman, 101 Madison av
Thomas A. Ryan, 27 Eagle st
Wm. B. Sabin, West Troy
Wm. L. Schutter, 279 Clinton av
Seth G. Shanks, 547 Clinton av
J. V. Sheppy, 62½ Division st
J. C. Shiland, West Troy
J. H. Skillicorn, 324 Hudson av
Chas. H. Smith, 246 Washington av
J. E. Smith, 246 Washington av
R. J. Smith, 114 Jay st
Julius B. Southworth, 47 Eagle st
B. U. Steenberg, 1 Ten Broeck st
M. D. Stevenson, 51 S. Ferry st
W. O. Stillman, 287 State st
John Ben. Stonehouse, 5 High st
J. H. Timmers, 383 Madison av
John Thompson, 5 Canal st
Franklin Townsend, Jr., 2 Park Pl
T. Markley Trego, 32 Clinton av
Willis G. Tucker, College Building
G. L. Ullman, 92 Central av
T. F. C. Van Allen, 48 Eagle st
Albert Vander Veer, 28 Eagle st
Howard Van Rensselaer, 94 Columbia st
E. Van Slyke, 91 Westerlo st
A. T. Van Vranken, West Troy
S. B. Ward, 135 North Pearl st
J. B. Washburne, Delmar
Felix Weidman, Westerlo
G. A. Williams, 6 Kenmore Place
James W. Wiltse, 1184 Broadway
L. B. Winne, 72 Livingston av
C. E. Witbeck, Cohoes
Harriet A. Woodward, 190 Lancaster st

Number of Members, 150.

Non-resident Members.

Wm. L. Allen, Greenbush
E. H. Humphrey, Greenbush

Deceased: Charles Devol, Albany, March 5, 1894, æt. 85; W. C. Marselius, Albany, December 24, 1893; P. M. Murphy, June, 1894.

MEDICAL SOCIETY OF THE COUNTY OF ALLEGANY.

(Date of organization unknown.)

MEETINGS.—Annual, second Wednesday in May; quarterly, secend Wednesday in August, November and February.

Officers. (May, 1894.)

Geo. E. Burdick, *President.* H. E. Cooley, *Vice-President.*
A. E. Willard, *Secretary and Treasurer.*
Attorney: J. F. Rice.

Censors: Mark Shephard, A. E. Willard, G. H. Witter,
H. F. Gillett, H. A. Barney.

Committee on Hygiene: A. E. Willard, J. W. Coller, Mark Shephard.

Delegate to State State Society: H. A. Barney.

Members:

Otis Allen, Cuba
H. A. Barney, Belmont
C. R. Bowen, Almond
George E. Burdick, Alfred
J. W. Coller, Wellsville
F. E. Comstock, Andover
J. M. Congdon, Cuba
H. E. Cooley, Belfast
A. W. Cottrell, Whitesville
W. W. Crandall, Wellsville
Dorr Cutler, Bolivar
J. L. Cutler, Bolivar
F. C. Davis, Angelica
C. C. Deming, Friendship
H. F. Gillett, Cuba
S. W. Green, Wellsville
W. I. Hewitt, Olean
O. N. Latham, Bolivar
H. H. Lyman, Fillmore
G. C. McNett, Bath
Charles W. O'Donnel, Andover
H. A. Place, Ceres
H. P. Saunders, Alfred Centre
Mark Shephard, Alfred Centre
F. N. Smith, Allentown
William M. Smith, Angelica
C. R. Spencer, Angelica
O. T. Stacey, Rochester, Monroe Co.
T. S. Thomas, Cuba
M. B. Titus, Whitesville
Chas. J. Tucker
W. F. Wells, Rushford
A. E. Willard, Friendship
G. H. Witter, Wellsville

Number of Members, 34.

Deceased: Benjamin Norton, Belmont.

MEDICAL SOCIETY OF THE COUNTY OF BROOME.

(Organized July 4, 1806.)

MEETINGS.—Annual, first Tuesday in October; quarterly, first Tuesday in January, April and July.

Officers. (October, 1893.)

L. D. Farnham, *President.* E. L. Smith, *Vice-President.*
John Leverett, *Secretary.* E. H. Wells, *Treasurer.*

Censors: J. H. Chittenden, J. G. Orton, D. S. Burr,
R. A. Seymour, C. W. Greene.

Delegate to State Medical Society: W. A. Moore.

Members.

(Where the name of the town is not given Binghamton is to be understood.)

S. P. Allen, Whitney's Point
N. R. Barnes, 140 Oak st
H. F. Beardsley, 500 Chenango st
E. L. Bennett, 273 Chenango st
J. W. Booth, West Colesville
D. S. Burr, 145 Court st
J. H. Chittenden, 51 Main st
E. N. Christopher, Union Centre
David F. Coats, Whitney's Point
J. C. Comstock, Henry st and Prospect
Dwight Dudley, Maine
Chas. C. Eastman, Binghamton State Hospital
L. O. Eastman, Union
I. C. Edson, Windsor
H. O. Ely, 62 Front st
J. M. Farrington, 11 Jay st
L. D. Farnham, 42 Main st
F. L. Forker, 38 Fayette st
K. C. French, Lisle
C. W. Greene, Chenango Forks
L. Griffin, 145 Court st
L. H. Hills, 3 Dwight Block
I. A. Hix, 144 Court st
F. P. Hough, 89½ Oak st
F. D. Lamb, Halstead, Pa.
John Leverett, cor Chenango and Lewis sts
C. C. McCullough, Harpursville
S. F. McFarland, 76 Front st
I. D. Meacham, Hammond Block
F. M. Michael, Washington st
W. A. Moore, 223 Washington st
E. Mulheron, 78 Front st
J. G. Orton, Henry st and Prospect av
Geo. E. Pierson, Kirkwood
E. A. Pierce, 259 Chenango st
J. F. Pratt, 41 Main st
F. W. Putnam, 210 Vestal av
John F. Place, Jr., 134 Court st
L. H. Quackenbush, 26 Arthur st
B. E. Radeker, Deposit
C. B. Richards, 86 Front st
R. A. Seymour, Whitney's Point
F. E. Slater, 2 Lydia st
Ed. L. Smith, 29 Myrtle av
E. L. Spencer, Windsor
A. F. Taylor, Castle Creek
E. L. Teed, Lisle
J. L. Van Alstyne, 100 Hawley st
Charles G. Wagner, Binghamton State Hospital
E. H. Wells, 36 Henry st
W. H. Wilson, Lestershire
L. D. Witherill, Union

Number of Members, 51.

Honorary Members.

W. W. Fletcher, Susquehanna, Pa.
P. A. Hayes, Afton, N. Y.
Jas. Ross, Utica, N. Y.
Geo. O. Williams, Greene, N. Y.
J. L. Whitney, Union, N. Y.
W. W. Whitney, Union, N. Y.
O. J. Wilsey.
H. T. Dunbar, Harford, Pa.

Deceased. W. A. Brooks, Binghamton.

MEDICAL SOCIETY OF THE COUNTY OF CATTARAUGUS.

MEETINGS.—Annual, at Salamanca, the first Tuesday of May; quarterly, on the first Tuesday of August, November and February.

Officers. (May, 1894.)

W. B. Johnson, *President.* Edward Torrey, *Vice-President.*
M. C. Hawley, *Secretary and Treasurer.*

Censors: J. E. K. Morris, F. C. Beals, E. M. Shaffner.

Delegate to State Medical Society: J. C. Clark.

Members.

H. J. Ashley, Machias
Frank H. Bartlett, Olean
Fred C. Beales, Salamanca
S. S. Bedient, Little Valley
M. C. Bissell, Limestone
F. P. Blair, Allegany
J. P. Booth, Olean
E. R. Burdick, Olean
Joseph C. Clark, Olean
J. P. Cosgrove, Salamanca

J. D. V. Coon, Olean
W. C. Dallanbaugh, Olean
Lyman L. Deck, Salamanca
John L. Eddy, Olean
F. D. Findlay, Franklinville
M. C. Follett, Olean
M. C. Hawley, East Randolph
Wm. B. Johnson, Ellicottville
Sophia B. Jones, W. Salamanca
Clarence King, Machias
A. D. Lake, Gowanda
George Lattin, Cattaraugus
T. B. Loughlin, Olean
S. B. McClure, Allegany
Wm. E. McDuffee, Olean
J. D. Maloy, Olean
J. E. K. Morris, Olean
S. J. Mudge, Olean
S. V. Pool, Otto
J. H. Sackrider, East Randolph
William Sage, Olean
Nelson Saunders, Randolph
E. M. Shaffner, Great Valley
Alfred W. Smallman, Ellicottville
Ambrose E. Smith, Olean
H. D. Snover, Steamburg
E. S. Stewart, Ellicottville
Ransom Terry, Ischua
O. A. Tompkins, Randolph
Edward Torrey, Allegany
W. H. Vincent, Hinsdale
H. D. Walker, Franklinville
C. M. Walrath, Ellicottville
G. W. Winterstine, Portville

Number of Members, 45.

Deceased: Henry Van Aernam, Franklinville, June 1, 1894, æt. 75.

MEDICAL SOCIETY OF THE COUNTY OF CAYUGA

(Organized August 7, 1806.)

MEETINGS.—Annual, second Thursday in May; semi-annual, second Thursday in December. Regular meetings the second Thursday in each month.

Officers. (May, 1894.)

Sheldon Voòrhees, *President.* George Slocum, *Vice-President.*
S. E. Austin, *Secretary.* William S. Cheesman, *Treasurer.*

Committee on Hygiene: J. P. Creveling, Amanda S. Hickey, Sheldon Voorhees.

Delegates to State Medical Society: C. O. Baker, F. H. Parker.

Members.

(When no town is mentioned Auburn is to be understood.)

Charles Atwood, Moravia
S. E. Austin, Auburn
C. O. Baker, 65 Genesee street
F. H. Benedict, Weedsport
M. O. Bentley, Weedsport
N. D. Blood, Cayuga
John I. Brinkerhoff, Seymour street
B. J. C. Buckland, Fleming
W. S. Cheesman, 22 William street
George E. Clark, Skaneateles
H. H. Coleman, Kings Ferry
M. P. Conway, 132 Genesee street
W. T. Cox, Moravia
J. P. Creveling, 22 South street
Robert Hill Dee, Fair Haven
F. A. Dudley, Kings Ferry
George E. Edmonds, Moravia
C. A. Fisher, Victory
E. S. Foreman, 55 Genesee street
John Gerin, 68 North street
D. J. Gilbert, Cato
George W. Green, E. Genesee street
C. A. Groot, 13 Ross Place
A. L. Hall, Fair Haven
F. M. Hamlin, Ovid
W. I. Hoag, Sherwood
A. F. Hodgeman, 4 William street
Amanda S. Hickey, 28 South street
J. H. Horton, Moravia
B. K. Hoxie, 42 Elizabeth street
J. M. Jenkins, 162 Genesee street
Nettie E. Jenkins, 162 Genesee street
Frank Kenyon, Scipio
Mary Kenyon, Kings Ferry
Wm. R. Laird, 97 North street
Charles L. Lang, Meridian
J. V. Larzelere, Poplar Ridge
Leroy Lewis, 14 Washington street
W. O. Luce, 12 William street
Marcia T. Morse, 1 Garden street
B. E. Osborn, 38 Fulton street
Susan G. Otis, 40 South street
J. O. Palmer, Auburn
— — Russell, Aurora
Frank Ryan, Moravia
Conant Sawyer, Genesee street
Fred. Sefton, "The Pines," Auburn
Goorge Slocum, Genoa

A. D. Stewart, Port Byron
O. B. Swayze, Union Springs
J. D. Tripp, 163 Genesee street
M. B. Van Buskirk, Aurora
Shelden Voorhees, 88 North street
J. W. Whitbeck, Cayuga
D. A. White, Montezuma

Number of Members, 57.

Deceased: A. S. Cummings, Cayuga, July 5, 1893, æt. 76.

MEDICAL SOCIETY OF THE COUNTY OF CHAUTAUQUA.

MEETINGS.— Annual, Second Tuesday in July; semi-annual, third Tuesday in December.

Officers. (July, 1891.)

Nelson G. Richmond, *President.* Morris N. Bemus, *Vice-President.*
C. A. Ellis, *Secretary and Treasurer.*
Censors: James Murphy, A. H. Bowers, R. T. Rolf.
Delegate to State Medical Society: N. G. Richmond.

Members.

Edward Ames, Kalamazoo, Mich.
N. E. Beardsley, Dunkirk
M. N. Bemus, Jamestown
W. M. Bemus, Jamestown
M. N. Benjamin, Dunkirk
George E. Blackham, Dunkirk
S. N. Blanchard, Jamestown
A. H. Bowers, Jamestown
H. J. Boyd, Ashville
M. J. Cowden, Gerry
H. W. Davis, Falconer
H. J. Dean, Brocton
H. A. Eastman, Jamestown
C. A. Ellis, Brocton
R. M. Evarts, Irving
S. E. Ford, Clymer
W. J. French, Hamlet
Lester Gibbons, Dunkirk
H. H. Glidden, Panama
H. P. Hall, Jamestown
W. M. Haynes, Sherman
G. W. Hazletine, Jamestown
Laban Hazletine, Jamestown
Ed. R. Hopkins, Silver Creek
J. J. Lenhart, Bemus Point
John C. Lewis, Panama
F. E. Lilley, Findley's Lake
A. T. Livingston, Jamestown
A. E. Lungren, Jamestown
E. C. Lyman, Jamestown
L. P. McCray, Clymer
G. D. Marsh, Sherman
J. W. Morris, Jamestown
James Murphy, Sherman
W. T. Nash, —— ——
M. R. Palmer, Jamestown
A. J. Phillips, Bear Lake, Pa.
P. E. Phillips, Bear Lake, Pa.
C. J. Phillips, Jamestown
W. A. Putnam, Westfield
E. S. Rich, Kennedy
N. G. Richmond, Fredonia
R. T. Rolph, Fredonia
H. R. Rogers, Dunkirk
E. Rood, Westfield
Artemas Ross, Clymer
E. A. Schofield, Bemus Point
E. M. Schofield, Jamestown
J. J. Sharp, Silver Creek
O. C. Shaw, Kennedy
L. H. Snow, Jamestown
T. D. Strong, Westfield
B. S. Sweatland, Brocton
C. H. Waterhouse, Sherman
J. H. Wiggins, Jamestown
I. C. Wilson, De Wittville

Number of Members, 56.

MEDICAL SOCIETY OF THE COUNTY OF CHEMUNG.

(Organized May 6, 1836.)

MEETINGS. — Annual, third Tuesday in May; quarterly, in August, November and February.

Officers. (1894.)

W. E. Colegrove, *President.* Jonas Jacobs, *Vice-President.*
N. H. Soble, *Secretary.* C. L. Squire, *Treasurer.*
Censors: T. A. Dundas, A. I. Lefevre,
John Moroney, J. H. Brewster, John E. Eldred.
Delegate to State Medical Society: John Moroney.

Members.

(Where no town is mentioned Elmira is to be understood.)

F. C. Annabel, 139 E. Hudson st
Chas. E. Annabel, Pennsylvania av
L. W. Bailey, Millport
George M. Beard, Millport
J. H. Brewster, 311 Grove st
C. W. M. Brown, 311 Baldwin st
M. M. Brown, W. Water st
R. P. Bush, Horseheads
Reuben R. Chilson, 610 W. Church st
W. E. Colegrove, Horseheads
E. H. Davis, 202 E. Water st
E. G. Drake, 412 W. Church st
T. A. Dundas, 257 Baldwin st
John E. Eldred, 107 South Main st
W. H. Fisher, S. Main st
F. H. Flood, 126 N. Main st
Henry Flood, 403 Lake st
H. W. Fudge, 504 Pennsylvania av
H. H. Ford, 422 West Church st
J. W. Gee, Van Ettenville
C. S. Gere, Chemung
Ebenezer Gere, Chemung
A. E. Gleason, Sanitarium
Ira F. Hart, 306 East Church st
C. F. Hawkins, Breesport
J. Stewart Hill, 151 Lake st
F. W. Huff, Wellsburg
Jonas Jacobs, 251 Baldwin st
O. A. Jakeway, Breesport
C. G. R. Jennings, 272 Baldwin st
A. I. LeFevre, E. Church st
A. I. LeFevre, Binghamton
Emma C. LeFevre, E. Church st
W. H. Loughhead, Jr., Pine City
J. Moroney, 328 Baldwin st
L. H. Merchant, 523 East Union st
G. V. R. Merrill, 458 Spaulding st
D. P. Merritt, 313 W. Clinton st
N. Sanford Messenger, Breesport
B. W. Morse, W. Church st
J. C. O'Brien, 504 Pennsylvania av
Wm. H. Olmstead, Horseheads
F. B. Parke, 33 E. Water st
R. B. Pratt, Baldwin and Market sts
H. DeV. Pratt, Jr., 118 Main st
D. H. Reardon, 53 South Main st
E. A. Reilly, Lake st
Frank W. Ross, Lake st
N. H. Soble, 505 E. Water st
C. L. Squire, 409 East Church st
S. F. Stagg, 151 W. Third st
E. H. Wakelee, Big Flats
T. A. Wales, 403 William st
J. A. Westlake, 1219 Lake st
Hamilton D. Wey, 359 Main st
William C. Wey, 359 Main st
Charles Woodward, 205 Gray st

Number of Members, 57.

Non-Resident Members.

E. P. Allen, Athens, Pa.
J. H. Cole, Gillett, Pa.
H. M. Darling, Corning, N. Y.
W. D. Davison, Canton, Pa.
Edward Mills, Ulster, Pa.
P. B. Roper, Alpine, N. Y.
T. S. Updegraff, Pasadena, Cal.
C. Voorhees, Daggett's Farm, Pa.

MEDICAL SOCIETY OF THE COUNTY OF CHENANGO.

(Organized in 1806.)

MEETINGS.— Annual, second Tuesday in January; semi-annual, second Tuesday in June.

Officers. (January 12, 1894.)

B. F. Smith, *President.*
R. A. Thompson, *Secretary.*
T. G. Packer, *Vice-President.*
S. M. Hand, *Treasurer.*

Censors: (None elected.)

Delegate to State Medical Society: G. O. Williams; J. M. Thorp, alternate.

Members.

L. C. Andrews, Pitcher
Louis P. Blair, McDonough
L. J. Brooks, Norwich
Vincent Burgess, Brisben
Alvin B. Church, Oneonta, Otsego Co
C. W. Crump, Sherburne
DeWitt C. Crump, Otselic
George Douglas, Oxford
Thomas Dwight, Preston
H. S. Dye, New Berlin
E. L. Ensign, Oxford
R. D. L. Evans, Bainbridge
T. G. Fernald, Norwich
H. S. Gardiner, Hamilton
S. C. Gibson, South New Berlin
D. A. Gleason, Oxford

O. A. Gorton, Sherburne
J. D. Guy, Coventry
S. M. Hand, Norwich
Blinn A. Harris, Norwich
P. A. Hayes, Afton
J. V. Jacobs, Mt. Upton
Reuben Jeffrey, Brooklyn
George D. Johnson, Greene
L. M. Johnson, Greene
D. M. Lee, Oxford
J. V. Lewis, North Norwich
F. S. Lovell, South Otselic
H. C. Lyman, Sherburne
S. F. McFarland, Binghamton
J. D. Mosher, Norwich
J. B. Noyes, New Berlin
B. J. Ormsby, Norwich
Thurston G. Packer, Smyrna
L. B. Palmiter, Mt. Upton
C. M. Purdy, Norwich
B. F. Smith, Mt. Upton
H. E. Smith, Norwich
M. E. Smith, Greene
S. L. Smith, Smithville Flats
M. D. Spencer, Guilford
W. H. Stuart, Norwich
R. A. Thomson, Norwich
J. M. Thorp, Oxford
G. S. Weaver, McDonough
H. H. White, Earlville, Madison Co.
G. O. Williams, Greene
H. G. Willse, South Edmeston

Number of Members, 48.

MEDICAL SOCIETY OF THE COUNTY OF CLINTON.

(Organized October 6, 1807.)

MEETINGS.—Annual, second Tuesday in January; semi-annual, second Tuesday in July.

Officers. (January, 1894.)

M. D. Briggs, *President.*
O. A. Holcomb, *Vice-President.*
D. S. Kellogg, *Secretary.*
T. B. Nichols, *Treasurer.*

Delegate to State Medical Society: J. B. Ransom.

Members.

C. W. Arthur, Plattsburgh
M. D. Briggs, Champlain
M. S. Carpenter, Clinton
Joel Chandler, Mooers
C. A. Church, Bloomingdale
W. E. Clough, Flushing
L. C. Dodge, Rouse's Point
E. S. Howe, Ausable Forks
R. E. Hyde, Beekmantown
D. S. Kellogg, Plattsburgh
F. D. Kinsley, Peru
Elmer E. Larkin, Plattsburgh
J. H. La Rocque, Plattsburgh
E. M. Lyon, Plattsburgh
J. G. McKinney, Schuyler Falls
Frank Madden, Plattsburgh
S. Mitchell, Jr., Saranac
A. W. Fairbank, Chazy
J. M. Hackett, Champlain
Charles S. Haynes, Redford
Samuel Haynes, Saranac
O. A. Holcomb, Plattsburgh
W. S. Honsinger, West Chazy
W. T. Honsinger, West Chazy
T. B. Nichols, Plattsburgh
Joseph C. Poissant, Champlain
J. B. Ransom, Dannemora
E. A. Robinson, Ellenburg
Clarkson C. Schuyler, Plattsburgh
J. H. Smith, Plattsburgh
W. U. Taylor, Mooers
C. B. Vaughan, Morrisonville
D. B. Woodward, Ellenburg

Number of Members, 33.

Honorary Members.

J. H. Bartholtz, U. S. Army.
H. O. Perley, U. S. Army.

MEDICAL SOCIETY OF THE COUNTY OF COLUMBIA.

MEETINGS.—Annual, first Tuesday in May at City Hall, Hudson; semi-annual, first Tuesday in October at Chatham.

Officers. (May, 1894.)

Nelson H. Mesick, *President.*
George W. Vedder, *Vice-President.*
Thomas Wilson, *Secretary and Treasurer.*

Censors: G. P. K. Pomeroy, Wm. H. Stickles, C. E. Fritts, N. H. Mesick, A. R. Van Dusen.

Delegate to State Medical Society: W. I. Gordon.

Members.

J. H. Allen, Churchtown
Milford L. Bates, Canaan Four Corners
John C. Benham, Hudson
George E. Benson, Hudson
O. Howard Bradly, Hudson
Henry Cornell, Hillsdale
Wm. H. Crocker, Ancram
P. S. Flanagan, Lebanon Springs
Crawford E. Fritts, Hudson
John J. Glover, Stuyvesant Falls
Wilmer I. Gordon, Copake Iron Works
N. D. Guernsey, Kinderhook
Jacob Horton, Livingston
George W. King, Stottsville
Martin M. Kittel, Ghent
F. T. Kunker, North Chatham
Isaac H. Lent, Valatie
Jordan W. Lockwood, Philmont
Nelson H. Mesick, Glenco Mills
Robert H. Morey, Old Chatham
Wm. B. Platner, Germantown
George P. K. Pomeroy, Stuyvesant
George W. Rossman, Ancram
Allen Sheldon, Copake
P. W. Shufelt, East Taghkanic
H. Lyle Smith, Hudson
Wm. O. Smith, Germantown
F. S. Snow, Valatie
Wm. H. Stickles, Philmont
Wm. D. Swain, Copake
A. R. Van Dusen, Claverack
George W. Vedder, Philmont
R. H. Vedder, Chatham Centre
I. C. Washburne, Chatham
H. G. Westlake, Hillsdale
John T. Wheeler, Chatham
George D. Wight, New Lebanon
Thomas Wilson, Claverack
Richard A. Woodruff, Philmont
T. F. Woodruff, Kinderhook

Number of Members, 40.

MEDICAL SOCIETY OF THE COUNTY OF CORTLAND.

(Organized August 10, 1808.)

MEETINGS.—Annual, second Thursday in June; semi-annual, second Thursday in December; quarterly, second Thursdays in September and March.

Officers. (June, 1893.)

H. D. Hunt, *President.* C. B. Trafford, *Vice-President*
Frank H. Greene, *Secretary and Treasurer.*

F. H. Green, *Librarian.*

Censors: G. D. Bradford, H. T. Dana, A. J. White, H. C. Hendrick, H. O. Jewett.

Delegate to State Medical Society: —— ——

Members.

Jerome Angel, Cortland
E. H. Barnes, Marathon
Charles E. Bennett, Cortland
W. Y. Bliss, Tully, Onondaga Co.
George D. Bradford, Homer
A. S. Bramer, Cuyler
Daniel W. Burdick, Syracuse, Onondaga Co.
Henry T. Dana, Cortland
F. A. Didama, Medina
H. Sheldon Edson, Cortland
F. H. Forshee, McGrawville
Frank H. Green, Homer
M. L. Halbert, Cincinnatus
A. L. Head, Homer
H. C. Hendrick, McGrawville
Francis W. Higgins, Cortland
J. W. Hughes, Cortland
Herman D. Hunt, Preble
Homer O. Jewett, Cortland
Benj. Kenyon, Cincinnatus
Edward M. McBirney, Willett
W. J. Moore, Cortland
Philip Neary, Union Valley
Judson C. Nelson, Truxton
R. J. Perry, Harford
Frank D. Reese, Cortland
M. R. Smith, McGrawville
R. L. Smith, Marathon
C. B. Trafford, Marathon
Sumner C. Webb, Homer
A. J. White, Cortland
J. W. Whitney, Homer

Number of Members, 32.

Deceased: William Fitch, Dryden, September 14, 1893, æt. 73.

MEDICAL SOCIETY OF THE COUNTY OF DELAWARE.

(Organized July 1, 1806.)

MEETINGS.— Annual, second Tuesday in May; semi-annual, in the Fall.

Officers. (May, 1894.)

William Ormiston, *President.* George Brinkman, *Vice-President.*
G. C. Smith, *Secretary.* George H. Reynolds, *Treasurer.*

Censors: Thomas Wight, G. C. Smith, R. R. Thompson, H. A. Gates, J. N. Wright.

Delegate to State Medical Society: H. A. Gates.

Members.

G. P. Bassett, Downsville
Howard Bell, Delhi
I. C. Bourne, Masonville
George H. Brinkman, Franklin
O. Bundy, Deposit, Broome Co.
S. S. Cartwright, Roxbury
S. E. Churchill, Stamford
John Clark, Delhi
Samuel A. Cottrell, Cannonsville
Wm. H. Crawford, Andes
S. Decker, Griffin's Corners
Gilbert J. Dickson, Bovina
E. W. Gallup, Stamford
H. A. Gates, Delhi
J. A. Gladstone, Andes
W. D. Heimer, Hamden
Stanton Hendricks, Croton
C. J. Hellis, Kingston
James A. Holley, Walton
Austin D. Johnson, East Branch
E. B. Lake, Meredith Hollow
A. F. Lombard, Meredith
Homer M. Mace, Hobart
D. H. Mann, Brooklyn, N. Y.
E. D. McKenna, Walton
J. S. McLaurey, New York, N. Y.
A. McLaury, Pleasant Valley, Dutchess county
J. S. McNaught, Hobart
J. B. Marrow, Walton
E. A. Miller, Arena
W. A. Minor, Bloomville
John A. Montgomery, Walton
J. Newkirk, Roxbury
G. S. Olin, Oneonta
Wm. Ormiston, Delhi
Gervase P. Peck, Davenport Centre
S. C. Pettingill, Hancock
Lyman Phinney, Bovina Centre
George H. Reynolds, Delhi
J. S. Robinson, Prattsville
Gilbert Scott, Davenport
J. G. Simmons, Downville
George C. Smith, Delhi
E. E. Snow, Walton
James C. Stone, Walton
A. E. Sullard, Franklin
R. R. Thompson, Kingston
J. A. Webb, East Meredith
S. J. White, Jr., Franklin
Thomas Wight, Andes
J. N. Wright, Grand Gorge

Number of Members, 51.

Deceased: H. N. Buckley, Delhi, January 23, 1894, æt. 74

Non-resident Members.

J. J. Buckley, Minnesota
T. M. Edwards, Iowa
F. H. McNaught, Denver, Col.
H. M. Smith, New Jersey

MEDICAL SOCIETY OF THE COUNTY OF DUTCHESS.

(Organized in 1806.)

MEETINGS.— Annual, second Wednesday in January, at Poughkeepsie; semi-annual, second Wednesday in June.

Officers. (January, 1894.)

J. H. Doughty, *President.* G. E. Coutant, *Vice-President.*
J. E. Sadlier, *Secretary.* Charles H. Langdon, *Treasurer.*

Censors: Alfred Hasbrouck, Robert K. Tuthill, E. H. Gerow.

Delegates to State Medical Society: David B. Ward, Geo. Huntington.

Members.

H. E. Allison, Matteawan
B. N. Baker, Rhinebeck
Thomas E. Bamford, Hudson River State Hospital
Edwin Barnes, Pleasant Plains
H. Weston Barnum, Poughkeepsie
T. J. Barton, Red Hook
Harold E. Bates, Poughkeepsie
X. T. Bates, Poughkeepsie
Guy C. Bayley, Poughkeepsie
J. S. Bird, Hyde Park
Nelson Borst, Poughkeepsie
R. J. Carroll, Red Hook
G. B. Chapman, Amenia Union
J. M. Cleveland, Poughkeepsie
G. H. Codding, Amenia
W. J. Conklin, Fishkill
S. W. M. Cornelius, Staatsburg
H. L. Cookingham, Red Hook
Isaac M. Cornell, Wappinger's Falls
J. E. Courtney, State Asylum for Insane Criminals, Matteawan
G. E. Coutant, Poughkeepsie
Wm. Cramer, Poughkeepsie
Thomas K. Cruse, Wappinger's Falls
John H. Cotter, Jackson Corners
J. H. Doughty, Matteawan
H. K. DuBois, Bangall
D. W. Dumond, Millerton
A. T. Fink, Freedom Plains
Charles L. Fletcher, South Dover
Elizabeth H. Gerow, Poughkeepsie
J. Haidlauf, Poughkeepsie
T. Hammond, Dover Plains
Joshua G. Harris, Hudson River State Hospital
Alfred Hasbrouck, Poughkeepsie
W. Herrick, Milan
A. F. Hoag, Millerton
Frank T. Hopkins, Fishkill-on-Hudson
George T. Howland, Tivoli
Edwin L. Hoyt, Shultzville
J. M. Hunting, Stanfordville
George Huntington, LaGrangeville
C. Hustis, Matteawan
Geo. E. Johnson, Pine Plains
M. Julian, Pleasant Valley
J. Kinkead, Poughkeepsie
C. M. Kittredge, Fishkill-on-Hudson
D. A. Knapp, North Clove
J. T. C. Lamb, Poughkeepsie
Robert B. Lamb, Matteawan
Charles H. Langdon, Poughkeepsie
I. D. Leroy, Pleasant Valley
E. Losee, Bangall
John E. Losee, Upper Red Hook
Warren C. McFarland, Mooers Mills
I. N. Mead, Amenia
J. E. Moith, Fishkill
Elizabeth R. G. Myer, Poughkeepsie
M. C. Northrup, McIntyre
Edward H. Parker, Poughkeepsie
J. C. Payne, Poughkeepsie
Paul A. Phillips, Hudson River State Hospital
H. Pierce, Pawling
C. W. Pilgrim, Hudson River State Hospital
J. O. Pingry, Mill Brook
J. W. Poucher, Poughkeepsie
Horace R. Powell, Poughkeepsie
J. G. Porteous, Poughkeepsie
Churchill A. Pritchard, Tivoli
M. T. Pultz, Stanfordville
L. E. Rockwell, Amenia
Selwyn A. Russell, Poughkeepsie
J. E. Sadlier, Poughkeepsie
D. W. Sheedy, Poughkeepsie
L. A. Sutton, East Fishkill
C. H. Thompson, Fishkill
C. H. Tripp, Clinton Corners
R. K. Tuthill, Poughkeepsie
G. H. Van Wagner, Wappinger's Falls
D. B. Van Wyck, Manchester Bridge
R. C. Van Wyck, Hopewell Junction
D. B. Ward, Poughkeepsie
W. S. Watson, Matteawan
G. M. Wellman, Dover Plains
Howell White, Fishkill
H. C. Wilbur, Pine Plains
P. T. Williamson, Poughkeepsie
J. P. Wilson, Poughkeepsie
J. S. Wilson, Poughkeepsie
L. C. Wood, Wappinger's Falls
W. C. Wright, Matteawan
J. Young, Fishkill-on-Hudson

Number of Members, 91.

Honorary Members.

R. Deming, Sharon, Conn.
H. Fountain, Yorktown
W. H. Helm, Sing Sing
Austin La Monte, Carmel
G. W. Murdock, Cold Spring
R. F. Weir, New York
N. W. Wheeler Patterson

Deceased: I. H. Traver, Pleasant Valley, 1893.

MEDICAL SOCIETY OF THE COUNTY OF ERIE.

MEETINGS.— Annual, second Tuesday in January; semi-annual, second Tuesday in June.

Officers. (January, 1894.)

William H. Gail, *President.* F. W. Bartlett, *Vice-President.*
Franklin C. Gram, *Secretary.* Geo. F. Cott, *Assistant Secretary.*
Edward Clark, *Treasurer.* Eugene A. Smith, *Ass't Treasurer.*

Wm. C. Callanan, *Librarian.*

Censors: James S. Porter, J. H. Potter, A. L. Benedict, Henry Lapp, J. F. Krug.

Delegates to State Medical Society: Herman E. Hayd, Wm. H. Bergtold, Edward C. W. O'Brien, John H. Pryor, Jno. J. Walsh, Wm. C. Callanan.

Membership Committee: John A. Pettit, Jas. W. Putnam, Geo. W. McPherson.

Members.

(Where no town is mentioned, Buffalo is to be understood.)

Frank W. Abbott, 223 Franklin st
George Abbott, Hamburg
Arthur B. Allen, 990 Genesee st
Thomas G. Allen, 419 Elk st
Judson B. Andrews, State Hospital
Wm. A. P. Andrews, 614 Jefferson st
J. Stone Armstrong, 195 14th st
Chas. H. W. Auel, 277 High st
Stanley C. Babcock, 2319 Main st
Wm. H. Baker, Williamsville
Lucius L. Ball, 190 Dearborn st
Edward H. Ballou, Gardenville
Rollin L. Banta, 358 S. Division st
Westervelt Banta, 407 Perry st
Edwin R. Barnes, 1258 West av
William C. Barrett, 208 Franklin st
T. L. Barry, Willink
F. W. Bartlett, 523 Delaware av
Bernard Bartow, 220 Franklin st
A. W. Bayless, 278 Genesee st
A. L. Benedict, 86 West Huron
A. G. Bennett, 90 W. Chippewa st
Henry G. Bentz, 894 Michigan st
W. F. Beutler, 649 Ellicott st
Wm. H. Bergtold, 56 Allen st
W. D. Bidaman, 335 Connecticut st
Henry H. Bingham, 2485 Main st
Jay J. Birmingham, 123 Pratt st
Elias S. Bissell, 2793 Main st
John Boardman, 210 Delaware av
Henry W. Bode, 730 Genesee st
Loren F. Boies, Howard av
John D. Bonner, 199 Franklin st
Bentley S. Bourne, Hamburg
Charles W. Bourne, Hamburg
Carlos E. Bowman, Alden
F. E. L. Brecht, 361 William st
Albert H. Briggs, 267 Hudson st
Elmer E. Briggs, 904 Clinton st
Mark N. Brooks, Springville
George L. Brown, 173 Niagara st
Ira C. Brown, 411 14th st
Frank F. Bruso, 203 Amherst st
Frank A. Burghardt, 632 Elm st
Paul F. Bussman, 637 Broadway
Henry C. Buswell, 358 S. Division st
Wm. C. Callanan, 51 W. Seneca st
Robert E. Campbell, 190 Niagara st
Jane W. Carroll, 288 Ashland av
Henry T. Carter, 210 Hoyt st
Charles Cary, 340 Delaware av
Wm. H. Chace, 266 Connecticut st
John S. Champlin, 1872 Niagara st
Chas. O. Chester, 438 Washington st
Chas. P. Clark, 236 E. Eagle st
Edward Clark, 271 Franklin st
Horace Clark, 21 North st
Wm. P. Clothier, 1005 Bouck av
John P. Coakley, 339 Delaware av
Bernard Cohn, 540 Niagara st
A. E. Collins, 248 Dearborn st
A. J. Colton, 151 E. Ferry st
Chas. E. Congdon, 1034 Jefferson st
Miles B. Cook, 105 Glenwood av
Benjamin W. Cornwell, Buffalo
George F. Cott, 560 Michigan st
Albert H. Crawford, 274 Swan st
Floyd S. Crego, 469 Delaware av
Montgomery A. Crockett, 37 Allen st
John Cronyn, 55 W. Swan st
John L. C. Cronyn, 51 Franklin st
Alphonse Dagenais, 473 W. Virginia st
Bryon H. Daggett, 258 Franklin st
John Dambach, 417 Michigan st
Clayton M. Daniels, 868 Main st
Earl G. Danser, 592 Walden av
Lewis P. Dayton, 15 Niagara st
L. A. Denton, 445 Franklin st
Mary J. Denton, 445 Franklin st
Alfred E. Diehl, 361 Pearl st
Conrad Diehl, 32 W. Genesee st
Elias T. Dorland, 86 N. Division st
L. Bradley Dorr, 300 Jefferson st
Samuel G. Dorr, 300 Jefferson st
Wm. Dowlman, 536 Swan st
J. J. Drake, 457 Breckenridge st
Sidney A. Dunham, 280 Franklin st
Thomas F. Dwyer, 268 Niagara st

Wesley C. Earl, 1541 Niagara st
David C. Eisbein, 399 Broadway
Charles P. Eller, 1440 Jefferson st
Henry S. Ellwood, 9 W. Mohawk st
Albert F. Erb, Clarence, N. Y.
Clark E. Ernest, 282 W. Ferry st
George E. Fell, 72 Niagara st
John D. Flagg, 125 E. Eagle st
M. B. Folwell, 713 Delaware av
Edgar A. Forsyth, 369 West av
Joseph Fowler, 31 Church st
Carlton C. Frederick, 64 Richmond av
Edward L. Frost, 489 Plymouth av
Wm. H. Gail, East Aurora
E. J. Gilray, 322 W. Ferry st
Frank M. Gipple, Bowmansville
Jacob Goldberg, 145 Cedar st
Sigmond Goldberg, 584 N. Division st
John N. Goltra, 441 Elmwood av
Franklin C. Gram, 460 Glenwood av
John R. Gray, 224 Front av
Mary T. Greene, Pike, N. Y.
Stephen S. Green, 328 Niagara st
DeWitt C. Greene, 1125 Main st
Joseph C. Greene, 1125 Main st
Walter D. Greene, 305 N. Division st
Willis G. Gregory, 530 Main st
J. W. Grosvenor, 118 Plymouth av
Benjamin H. Grove, 334 Pearl st
Carl H. Guess, 73 Main st
Adelbert G. Guamer, 802 Bailey av
Joseph Haberstro, 89 High st
Robt. S. Hambleton, Kenmore
Devillo W. Harrington, 1430 Main st
Jno. T. Harris, Tonawanda
Marcell Hartwig, 38 E. Huron st
Leon F. Harvey, 19 W. Tupper st
John Hauenstein, 499 Washington st
Herman E. Hayd, 78 Niagara st
G. J. Himmelsbach, 137 W. Tupper st
Robert Harbenstreet, 430 Broadway
J. M. Hewitt, 433 S. Division st
F. E. Hill, 532 Swan st
Geo. J. Hearne, 191 Auburn av
F. Whitehall Hinkel, 305 Delaware av
John A. Hoffmeyer, 150 East st
John Honsberger, 261 Emslie st
Henry R. Hopkins, 433 Franklin st
Charles F. Howard, 1415 Main st
Lucien Howe, 87 W. Huron st
Stephen Y. Howell, 164 Franklin st
Burt P. Hoyer, 216 N. Division st
F. F. Hoyer, Tonawanda
Alvin A. Hubbell, 212 Franklin st
Howard L. Hunt, Orchard Park
Arthur W. Hurd, State Hospital
Henry D. Ingraham, 405 Franklin st
Wm. H. Jackson, Springville
C. R. Jennings, Alden
Wm. E. Jennings, Boston
Carlton R. Jewett, 1299 Main st
Charles S. Jewett, 153 Woodlawn
B. C. Johnson, 1315 Jefferson st
Thomas M. Johnson, 309 Main st
Allen A. Jones, 436 Franklin st
H. C. Jones, 1262 Seneca st
Andrew Kamerling, 171 Bryant st
John Ketchum, 302 Hampshire st
A. B. Knisley, 356 Swan st
Jacob M. Kraus, E. Utica st
Wm. C. Krauss, 382 Virginia st
Lewis Krombein, 246 Elm st
Julius F. Krug, 870 Broadway
Henry Lapp, Clarence
Ada C. Latham, 174 Dodge st
H. C. Leonhardt, Tonawanda
Clarence B. Le Van, 1123 Jefferson st
George W. T. Lewis, 318 Ashland av
Edward Little, 161 Main st
Benjamin G. Long, 520 Elmwood av
Eli H. Long, 1335 Main st
C. E. Long, 192 Richmond av
Benj. L. Lothrop, 81 Breckenridge st
Thomas Lothrop, 153 Delaware av
U. C. Lynde, 241 Swan st
A. T. Lytle, 260 Lexington av
John J. McCullough, 166 Goodell st
Wm. A. McFarlane, Springville
George H. McMichael, 63 Niagara st
George W. McPherson, Lancaster
John D. McPherson, Akron
Gustavus E. Mackay, 47 W. Swan st
Matthew D. Mann, 37 Allen st
J. Irving Marclay, 189 Franklin st
Andrew J. Martin, Clarence
H. G. A. Matzinger, State Hospital
Charles S. Meahl, 84 William st
H. Mead, 465 W. Ferry st
John G. Meidenbauer, 204 High st
F. T. Metcalf, 329 Franklin st
Reuben S. Meyers, Clarence Centre
E. J. Meyer, 1312 Main
Herbert Mickle, 9 Niagara st
John Middleton, 233 Massachusetts st
John G. Miller, Lancaster
Edwin A. Millring, 148 Chenango st
David A. Morrison, 662 Oak st
F. G. Moehlen, 1266 Jefferson st
Henry J. Mulford, Delaware av
Henry B. Murray, Tonawanda
Herman Mynter, 566 Delaware av
Henry Nichell, 80 Sycamore st
Clautzes J. Niemand, 554 Michigan st
Edward C. W. O'Brien, 439 Delaware av
Wm. J. Packwood, 459 Genesee st
Roswell Park, 510 Delaware av
L. P. L. Parker, Akron
John Parmenter, 372 Franklin st
R. L. Patterson, 537 Franklin st
George W. Pattison, 17 Court st
Albert E. Persons, 93 Mohawk st
John A. Pettit, 519 Swan st
Louis Pfandhoefer, 1023 Genesee st
Edward N. Pfohl, 88 Niagara st
Wm. C. Phelps, 146 Allen st

John T. Pitkin, 629 Main st
Gustav A. Pohl, 96 Lemon st
Julius Pohlman, Franklin st
James S. Porter, 289 Cedar st
Irving W. Potter, 749 Broadway
Julius H. Potter, 177 Dearborn st
Samuel Potter, Lancaster
Wm. W. Potter, 284 Franklin st
Fred H. Powell, 179 Franklin st
Frederick Preiss, 115 Franklin st
John H. Pryor, 253 Allen st
James W. Putnam, 388 Franklin st
Lillian C. Randall, 41 Otis Place
Michael Retel, 259 Broadway
W. Scott Renner, 361 Pearl st
Charles J. Reynolds, 891 Genesee st
Francis M. Rich, 284 Richmond av
Walter J. Riehl, 158 Swan st
Charles A. Ring, 364 Niagara st
Wm. G. Ring, 364 Niagara st
Wm. E. Robbins, Hamburg
De Lancey Rochester, 469 Franklin st
Benjamin F. Rogers, 221 Franklin st
Reuben M. Root, 537 William st
T. Haven Ross, 344 Ashland av
Clinton A. Sage, 224 W. Ferry st
James B. Samo, 34 Tracy st
Louis Schade, 244 Goodell st
C. A. Schladermundt, 510 William st
Macy B. Searls, East Aurora
J. F. Sell, 8 South Division st
Thomas J. G. Sheehan, 307 Elk st
Harriet E. Sheldon, 433 Breckenridge st
Dewitt H. Sherman, 666 Main st
C. S. Siegfried, 280 Franklin
Duncan Sinclair, Tonawanda
George H. Sisson, 187 Plymouth av
Wm. H. Slacer, 200 Niagara st
C. Maynard Smith, 494 Massachusetts st
Eugene A. Smith, 66 High st
Edward T. Smith, 189 14th st
James S. Smith, 66 High st
Louis G. Smith, 300 Elk st
Irving M. Snow, 371 Porter av
Frederick H. Stanbro, Springville
Loren H. Staples, 173 E. Ferry st
Elmer Starr, 174 Franklin st
Edw. T. Stevens, 440 Massachusetts st
T. Selden Stewart, 158 15th st
Charles G. Stockton, 436 Franklin st
James Stoddard, 162 14th st
Edward Storck, 220 Eagle st
Eugene E. Storck, 510 William st
Brayton N. Strong, Boston
O. C. Strong, Colden
Ransford C. Tabor, Tonawanda
Fridolin Thoma, 1072 Lovejoy st
Otto Thoma, 1014 Genesee st
John C. Thompson, 55 Amherst st
Justin G. Thompson, Angola
Frank J. Thornbury, 469 Delaware st
Wm. H. Thornton, 570 Niagara st
Emil S. Tobie, 41 E. Mohawk st
H. S. Townsend, 1177 Seneca st
Hiram P. Trull, Williamsville
E. H. Tweedy, 394 Vermont st
John J. Twohey, 167 E. Utica st
C. A. Tyler, Alden
Frank P. Vandenbergh, 32 Lewis Block.
P. W. Van Peyma, 445 William st
W. Van Peyma, 940 Broadway
Frank B. Voght, 592 Sycamore st
Charles A. Wall, 306 Hudson st
John J. Walsh, 480 Ellicott st
Walden M. Ward, North Collins
Samuel H. Warren, 30 W. Genesee st
F. L. Watkins, 13 William st
Ernest Wende, 471 Delaware ave
Geo. W. Wende, 471 Delaware ave
Julius Wenz, Lancaster
Geo. H. Westinghouse, 313 Fargo av
Charles H. Wetzel, 582 Genesee st
Isaac G. Wheeler, 191 Eagle st
Electa B. Whipple, 491 Porter av
John E. Whitmore, 1099 Genesee st
J. F. Whitwell, 368 Swan st
Herbert N. Williams, 186 Allen st
Matthew Willoughby, 39 Franklin st
Edw. R. Wise, Williamsville, N. Y.
Albert B. Wilson, 218 Virginia st
James P. Wilson, 867 Niagara st
Wenceslaus Wolf, 488 Fillmore av
Cardinal T. Wolsey, 12 S. Division st
Wm. H. Woodbury, 258 Franklin st
Chas. H. Woodward, 865 Niagara st
Cornelius C. Wyckoff, 482 Delaware av
George W. York, 190 Franklin st
Edson H. Young, 444 Elk st

Number of Members, 312.

Deceased: Charles L. Dayton, Buffalo, September 7, 1893, æt. 67.

MEDICAL SOCIETY OF THE COUNTY OF ESSEX.

ANNUAL MEETING.— Third Tuesday in May.

Officers. (May, 1894.)

C. S. McLaughlin, *President.*
A. C. Grover, *Secretary.*
C. T. Walton, *Vice-President.*
W. T. Sherman, *Treasurer.*

Censors: A. C. Grover, Robert T. Saville, Charles T. Walton.

Delegate to State Medical Society: R. T. Saville.

Members.

Lyman Barton, Willsborough
Lyman G. Barton, Willsborough
Jesse Braman, Wadhams Mills
Benjamin W. Burland, Schenectady
Francis J. D'Avignon, Ausable Forks
E. J. Dunn, Schroon Lake
Allen C. Grover, Port Henry
Edwin S. Howe, Ausable Forks
Martin J. LaBell, Lewis
Chas. S. McLaughlin, Ticonderoga
Albinus J. Merrill, Upper Jay
Joseph B. Murray, Crown Point
Dudley Palmer, Schroon
W. E. Pattison, Westport
Hannibal W. Rand, Keene
Robert T. Saville, Mineville
Conant Sawyer, Auburn
Wm. T. Sherman, Crown Point Centre
Melvin H. Turner, Moriah Corner
Chas. T. Walton, Port Henry
Chas. B. Warner, Port Henry
Joseph Warner, Crown Point
Rollin C. Wilcox, Ticonderoga

Number of Members, 23.

Removals: Frank T. Delano, of Westport, to Rockville Centre, Long Island; John A. Henry, of Mineville, to Denver, Col.; J. G. Marron, of Port Henry, to Brainard, Neb.

MEDICAL SOCIETY OF THE COUNTY OF FRANKLIN.

(Organized in 1814; reorganized in 1848.)

MEETINGS.—Annual, first Tuesday in January; semi-annual, first Tuesday in June; quarterly, first Tuesday in September.

Officers. (January, 1894.)

F. D. Whitehead, *President.* J. A. Grant, *Vice-President.*
R. J. Wilding, *Secretary and Treasurer.*

Censors: R. J. Wilding, W. A. Atwater, W. H. Harwood.

Delegate to State Medical Society: C. E. Pearl.

Members.

W. A. Atwater, St. Regis Falls
J. O. A. Beaupré, Malone
R. Bestle, Burke
B. Bigelow, Buck Mountain
J. H. Cameron, Malone
C. A. Church, Bloomingdale
C. Crippen, Trout River
P. F. Dolphin, Malone
H. Furness, Malone
T. Gay, Malone
J. A. Grant, Malone
W. H. Harwood, Chasm Falls
L. E. Hawkins, Brushton
G. Howe, Chateaugay
J. A. Johnson, Chateaugay
J. R. Johnson, Bangor
E. A. La Rocque, Malone
C. McConnell, Hogansburgh
G. H. Oliver, Dickinson Centre
C. E. Pearl, North Bangor
H. S. Rockwood, Bombay
E. A. Rust, Moira
C. D. Silver, Chateaugay
C. Skinner, Malone
J. A. Smart, Fort Covington
C. B. Smith, West Bangor
C. E. Stickney, Constable
E. E. Thurber, Brainardville
J. S. Van Vechten, Chateaugay
L. M. Wardner, St. Regis Falls
F. D. Whitehead, Burke
A. G. Wilding, Malone
R. J. Wilding, Malone

Number of Members, 33.

Deceased: S. P. Bates, Malone; William Gillis, Fort Covington.

MEDICAL SOCIETY OF THE COUNTY OF FULTON.

MEETINGS.—Annual, second Thursday in January; semi-annual, second Thursday in June.

Officers. (January, 1894.)

H. C. Finch, *President.* L. J. Daily, *Vice-President.*
A. L. Johnson, *Secretary.* T. K. Thorne, *Treasurer.*

Censors: Eugene Beach, J. E. Burdick, W. C. Wood.

Delegate to State Medical Society: Frank Beebe.

Members.

Eugene Beach, Gloversville
Frank Beebe, Johnstown
J. F. Blake, Northville
John E. Burdick, Johnstown
Mary H. Cullings, Gloversville
L. J. Daily, Gloversville
Wm. Davis, Gloversville
Isaac DeZouche, Gloversville
M. F. Drury, Broadalbin
John Edwards, Gloversville
H. C. Finch, Broadalbin
Peter R. Furbeck, Gloversville
F. I. Gidley, Johnstown
J. A. Hagar, Gloversville
A. C. Hagedorn, Gloversville
A. L. Johnson, Gloversville
J. W. Joslin, Johnstown
C. M. Lefler, Gloversville
C. McCulloch, Gloversville
F. A. Mead, Gloversville
L. R. Oatman, Gloversville
Darius S. Orton, Northampton
C. A. Sternberg, Gloversville
David V. Still, Johnstown
J. K. Thorne, Gloversville
W. C. Wood, Gloversville
James K. Young, Johnstown

Number of Members, 28.

MEDICAL SOCIETY OF THE COUNTY OF GENESEE.

(Organized about 1811.)

MEETINGS.—Annual, second Tuesday in June; semi-annual, second Tuesday in January, at Batavia.

(This County Society has not communicated with the State Society since 1884.)

Members.

S. Barrett, Le Roy
S. C. Bateman, Alabama
W. T. Bolton, Batavia
J. F. Cleveland, Le Roy
F. W. Crane, Corfu
G. W. Croff, Bethany
O. R. Croff, Bethany
A. G. Ellenwood, Attica, Wyom'g Co.
B. A. Fuller, Le Roy
G. B. Gilbert, Byron
A. P. Jackson, Oakfield
J. M. Lewis, Elba
H. A. Morse, Batavia
I. T. Mullen, Stafford
I. V. Mullen, Alexander
John H. Mullen, Alexander
Wm. Pardee, Oakfield
L. B. Parmalee, Batavia
A. D. Smith, East Pembroke
E. C. Smith, Corfu
M. W. Townsend, Bergen
L. L. Tozier, Batavia
I. W. Warner, Elba
R. Williams, Le Roy
A. F. G. Zurhorst, Alabama

Number of Members, 25.

MEDICAL SOCIETY OF THE COUNTY OF GREENE.

(Organized July, 1806; reorganized October 13, 1855.)

MEETINGS.—Annual, second Tuesday in May; semi-annual, second Tuesday in October; quarterly, second Tuesday in July and January.

Officers. (1894.)

Robert Selden, *President.* E. H. Merriam, *Vice-President.*
W. C. Wright, *Secretary.* C. E. Willard, *Treasurer.*

Censors: Ambrose Beach, E. H. Merriman, I. T. Sutton, W. B. Shaw.

Delegate to State Medical Society: E. E. Elliott.

Members.

Ambrose Beach, Coxsackie
Charles H. Chubb, Palenville
F. S. Cole, Cairo
George Conklin, Durham
F. S. Deyoe, Hunter
E. E. Elliott, Catskill
Dugrand D. Erway, Leeds
Nelson Fanning, Catskill
Nelson Fanning, Jr., Catskill
Edwin L. Ford, Lexington
D. Gilleland, Oak Hill
Henry J. Griffin, Cairo

Nelson H. Griffin, Cairo
George Haner, Tannersville
Wm. B. Heustis, Kiskatom
S. A. Holcomb, Palenville
W. F. Lamont, Catskill
Howard A. Lomax, New Baltimore
Bradley S. McCabe, Greenville
Charles P. McCabe, Greenville
Wm. P. McLaury, Catskill
J. H. Mead, Hunter
Wm. H. Mead, Windham
E. H. Merriam, Coxsackie
George H. Noble, Cairo
John D. Robinson, Prattsville
J. B. Rouse, Leeds
L. Safford, East Durham
O. G. Selden, Catskill
Robert Selden, Catskill
W. B. Shaw, New Baltimore
P. J. Stanley, Windham
I. T. Sutton, Prattsville
I. J. Van Hoesen, Medway
A. W. Van Slyke, Coxsackie
W. A. Wasson, Greenville
F. A. Wheeler, Athens
Charles E. Willard, Catskill
W. C. Wright, Leeds

Number of Members, 39.

Deceased: Brayton A. Johnson, Ashland; Samuel T. Searles, New Baltimore.

HAMILTON COUNTY

(Has no Medical Society.)

MEDICAL SOCIETY OF THE COUNTY OF HERKIMER.

(Organized August 5, 1806.)

MEETINGS.— Annual, first Tuesday in March at the Court-house in Herkimer; semi-annual, first Tuesday in September; quarterly, first Tuesday in June and December. The place for all meetings, except the annual, is designated at the annual meeting.

Officers. (March, 1894.)

Cyrus Kay, Jr., *President.* S. S. Richards, *Vice-President.*
A. Walter Suiter, *Secretary.* George Graves, *Treasurer.*
John H. Shaper, *Librarian.*

Committee on Hygiene: C. W. Hamlin, K. A. Bushnell, John H. Shaper, Fred E. Easton, M. W. Brown.

Committee on Microscopy: A. Walter Suiter, C. W. Hamlin, W. D. Garlock.

Delegate to State Medical Society: William D. Garlock.

Members.

George A. Armstrong, West Winfield
F. M. Barney, Dolgeville
W. J. Brady, Little Falls
M. W. Brown, Cedarville
Wm. Brown, Cedarville
W. W. Budlong, Frankfort
K. A. Bushnell, Little Falls
J. E. Casey, Mohawk
H. J. Christman, Columbia
Fred F. Comstock, Ilion
D. M. Devendorf, Herkimer
Lyman C. Dexter, Newport
A. J. Douglass, Ilion
A. O. Douglass, Little Falls
Edgar H. Douglass, Little Falls
E. M. Draper, Ilion
F. E. Easton, Van Hornesville
I. S. Edsall, Middleville
John B. Ellis, Little Falls
George S. Eveleth, Little Falls
J. D. Fitch, Mohawk
George Graves, Herkimer
Wm. D. Garlock, Little Falls
Chas. H. Glidden, Little Falls
H. H. Greene, Paine's Hollow
C. W. Hamlin, Middleville
Wm. H. Harter, Herkimer
Wm. E. Hayes, Frankfort
J. B. Holcomb, Newport
Ward E. Hunt, Little Falls
Stephen A. Ingham, Little Falls
Cyrus Kay, Jr., Herkimer
G. N. Lehr, Frankfort
Miles Longshore, Cold Brook
Adam Miller, Jordanville
S. R. Millington, Poland
A. A. Moors, West Winfield
Irving O. Nellis, Herkimer

C. W. Nichols, Fairfield
Wm. H. H. Parkhurst, Frankfort
Peter Pryne, Herkimer
George P. Rasbach, Mohawk
James I. Rasbach, Ilion
S. S. Richards, Frankfort
James M. Rose, West Winfield
John H. Shaper, Herkimer
John P. Sharer, Little Falls
P. A. Skiff, Frankfort
John H. Stephens, West Winfield
C. G. Strobel, Dolgeville
A. Walter Suiter, Herkimer
Edgar C. Swift, Jordanville
William Tibbits, Newville
D. P. Van Court, Mohawk
Robert W. Warner, Ilion
U. Grant Williams, Newport
Wm. B. Woodhull, Poland
John D. Young, Starkville

Number of Members, 58.

Removed: B. Onuf, of Dolgeville; Vaughn C. Potter, of Starkville; Malek A. Southworth, of Little Falls.

MEDICAL SOCIETY OF THE COUNTY OF JEFFERSON.

MEETINGS.— Annual, second Tuesday in January; semi-annual, second Tuesday in July; quarterly, second Tuesday in April and October.

Officers. (January, 1893, list not revised.)

D. C. Rodenhurst, *President.* F. W. H. Massey, *Vice-President.*
H. H. Smith, *Secretary.* C. M. Rexford, *Treasurer.*

Censors: L. G. Gifford, P. H. Johnson, M. L. Smith, G. M. McCombs, G. G. Sabin.

Business Committee: J. D. Spencer, G. M. McCombs, H. H. Smith.

Delegates to State Medical Society: G. M. McCombs, C. M. Rexford.

Members.

I. H. Abell, Antwerp
F. C. Bailey, Adams Center
W. C. Bailey, Adams Center
H. D. Bingle, Carthage
G. A. R. Blake, Watertown
A. J. Boyd, Sackett's Harbor
E. A. Chapman, Belleville
B. C. Cheeseman, Depauville
Robert Clink, Redwood
J. M. Crawe, Watertown
J. M. Crawe, Jr., Watertown
F. T. Dale, Lafargeville
H. H. Deane, Watertown
C. S. Drury, Natural Bridge
O. C. Eastman, Watertown
E. E. Eddy, Redwood
W. A. Forrester, Watertown
S. W. Frame, Belleville
A. A. Getman, Chaumont
L. G. Gifford, Rodman
J. C. Graham, Philadelphia
M. J. Hutchins, Redwood
H. W. Jewett, Chaumont
Edward F. Johnson, Champion
P. H. Johnson, Adams
C. L. Jones, Lafargeville
L. E. Jones, Evans' Mills
James E. Kelsey, Theresa
H. A. McIllmoyl, Clayton
George M. McCombs, Clayton
E. K. McCreary, ——
E. R. McCreary, Watertown
Mrs. Lois Mansfield, Watertown
L. Mason, Evans' Mills
F. W. H. Massey, Brownville
Charles Parker, Three Mile Bay
Kate Parker, Watertown
John Pierce, Adams
C. M. Rexford, Watertown
DeWitt C. Rodenhurst, Philadelphia
George G. Sabin, Black River
W. H. H. Sias, Ellis Village
E. Sill, Watertown
F. B. Smith, Watertown
H. H. Smith, Watertown
J. Monroe Smith, Watertown
M. L. Smith, Watertown
H. L. Smith, Rodman
Gordon P. Spencer, Watertown
H. G. P. Spencer, Watertown
James D. Spencer, Watertown
A. B. Stevens, Watertown
C. G. Stevens, Watertown
J. R. Sturtevant, Theresa
George E. Sylvester, Black River
W. G. Terry, Henderson
A. S. Thompson, Ellis Village
E. W. Trowbridge, Watertown
W. A. Vincent, Three Mile Bay
E. E. Ward, Pamelia Four Corners
Lewis C. Watson, Alexandria
J. A. Wood, Plessis
G. H. Wood, Antwerp

Number of Members, 63.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

MEETINGS.— Annual, third Tuesday in January; stated meetings, third Tuesday of other months; all meetings are held in Brooklyn, at 356 Bridge street, the permanent home of the Society. A "Journal and Reading Room" is open daily (except Sundays) from 10 A. M. to 10 P. M.; over two hundred journals are regularly on file. The library has recently been improved by the addition of several valuable works of reference, and the best of the new medical monographs and text-books, and now contains more than 8000 books and pamphlets. This Society also owns and publishes monthly *The Brooklyn Medical Journal*, which has now about 2000 subscribers.

Officers. (January, 1894.)

Geo. McNaughton, *President.* — Joseph H. Hunt, *Vice-President.*
David Myerle, *Secretary.* — Wm. C. Braislin, *Assistant Secretary.*
Chas. N. Cox, *Treasurer.* — Wm. Browning, *Librarian.*

Censors: C. F. Barber, G. R. Butler, Joel W. Hyde, Geo. E. Law, J. M. Winfield.

Trustees: A. Ross Matheson, Z. Taylor Emery, Charles Jewett, Walter B. Chase, Frank D. West.

Delegates to State Medical Society.

(1892–1895.)

A. J. C. Skene, Wm. Browning, G. R. Butler,
Jno. A. McCorkle, H. L. Bartlett, Joel W. Hyde,
G. McNaughton, H. B. De La Tour, W. H. B. Pratt,
Jno. C. McEvitt, H. C. McLean, Ernest Palmer.

(1893–1896.)

J. M. Winfield, Reuben Jeffery, J. M. Van Cott,
Geo. E. Law, C. F. Barber, Frank Baldwin.

Members.

Atkinson, J. G., 257 Adelphi st
Ayres, Benjamin, 213 Jefferson av
Applegate, W. S., Flatbush
Alleman, L. A. W., 64 Montague st
Arrowsmith, H., 236 Degraw st
Ayres, H., Messenger, 91 Lafayette av
Alderton, H. A., 175 Remsen st
Armstrong, H. L., 135 Clinton st
Anderson, S. F., 672 Degraw st
Aldridge, Belle Voorhees, Flatbush
Arbona, A., 146 East New York av

Barber, J. H., 36 Lafayette av
Bartlett, H. L., Flatbush, L. I.
Bartley, E. H., 21 Lafayette av
Bayles H. B., 442 Ninth st
Bailey, Fred. D., 333 Hancock st
Baldwin, Frank, 691 Willoughby av
Bennett, W. H., 188 Sixth av
Bell, L. T., 81 Vernon st
Beasley, C. D., 706 Greene av
Bender, Herman, 849 Willoughby av
Belcher, W. N., 25 So. Portland av
Bellows, Chas. N., 442 Nostrand av
Blake, J. A., 194 Putnam av
Bliss, H. D., 23 Halsey st
Bodkin, D. G., 290 Clinton av
Bowron, F. W., 259 Tompkins Square
Bogart, J. B., 423 Washington av
Boggs, Seth D., 341 Tompkins av
Briggs, Benj. M., 106 Willoughby av
Bristow, A. T., 234 Clinton st
Brush, George W., 2 Spencer Place
Brown, Anna M., 976 Bedford av
Browning, William, 54 Lefferts Place
Browning, William W., 155 Reid av
Brush, Arthur C., 339 Lafayette av
Bunker, E. S., 178 St. Johns Place
Burge, J. H. H., 132 Montague st
Butler, G. R., 229 Gates av
Buchaca, Emilio, 233 Reid av
Burroughs, Benj., 428 Franklin av
Byrne, John, 314 Clinton st
Belt, H. K., 384 Union st
Baldwin, L. G., 164 Clinton st
Bullwinkle, Henry, Madison st and Franklin av
Bates, W. H., 116 Schermerhorn st
Brewster, R. C., 126 Lefferts Place
Blake, B. F. M., 35 Schermerhorn st
Braislin, W. C., 515 Clinton ave
Boyden, E. E., Marcy av & Hart st
Butler, W. E., 29 Monroe st
Babcock, E. H., 144 Lawrence st
Buckley, Thomas M., 37 Hicks st
Bernauer, E. C., 50 Tompkins ave

Berlenbach, P. H., 16 Suydam st
Bostwick, Benjamin E., 20 Clinton st
Byrne, S. J., 56 Seventh av
Burnett, P. V., 274 Driggs av
Barber, C. F., 36 Lafayette av
Brundage, A. H., 1157 Gates av
Blaisdell, S. C., 225 Roebling st
Brown, Lucy Hall, 158 Montague st
Bishop, E. S., 99 Franklin av
Brown, S. S., 844 Lafayette av
Bowser, W. P., 506 Ninth st
Brinkman, A., 176 Bergen st
Berendsohn, W. A., Lafayette av
Boucher, G., 229 Union st
Baker, E. E., 73 Fort Green Place
Burns, Albert C., 464 Herkimer st
Brunner, Chas. W., 993 Flushing av

Candidus, P., 228 South 9th st
Catlin, Arnold W.,207 Greene av
Carolan, E. J., 856 Bedford av
Carney, James L., 44 Fourth av
Carroll, A. F., 97 Park av
Childs, S. B., 498 Classon av
Church, S., 236 Clinton st
Chase, Walter B., 645 Marcy av
Clark, Joseph E., 340 Clinton st
Cochran, Alex., 127 Seventh av
Cochran, H. L., 141 Clinton st
Cochran, J. A., 127 Seventh av
Colton, F. H., 136 Montague st
Conkling, J. T., 143 Remsen st
Corey, Chas., 23 South Oxford st
Coverley, J. H., 191 Washington Park
Cook, C. D., 133 Pacific st
Cox, Charles N., 168 Halsey st
Corcoran, W. J., 301 Clinton st
Conkling, Henry, 143 Remsen st
Criado, Louis F., 147 Fort Green Pl
Cruikshank, Wm. J., 5 Lafayette av
Crowell, E. P., 69 Decatur st
Cushing, G. W., 221 Schermerhorn st
Curry, Albert M., 493 Classon av
Clarke, Stanley G., 694 Halsey st
Coffin, Lawrence, 516 Bedford av
Carley, W. R. A., 1120 Bushwick av
Cornell, J. L,, 33 Monroe Place
Chaffee, George, 201 Forty-seventh st
Cameron, H. DeH., 23 Seventh av
Coville, A. L.
Clayland, J. M., 449 Pulaski st
Clapp, H. M., 100 Clymer st
Cornwall, E. E., 146 Herkimer st
Conrad, L., 136 South Ninth st
Clark, F. H., 690 Greene av

Day, E. A., 306 Sumner av
DeLong, W. A., 285 So. Second st
DeMund, F. C., New Utrecht
Dickinson, R. L., 145 Clinton st
Dority, Charles E., 411 Union st
Dower, A. J., 380 Union st
Drury, G., 115 Johnson st
Droge, J. H., 8 Stuyvesant av
Dusseldorf, L. M., 250 Hoyt st
De la Tour, H. B., 867 Union st
Duryea, J. T., Kings Co. Hospital
Dixon, Thomas, 74 Sands st
Dudley, W. H., 147 Clinton st
Dominguez, George, 97 Second Pl
Dunning, Z. T., Arlington av. & Cleveland st
Dirkes, G. J., 540 Madison st
De Castro, Joseph F., 553 Henry st
Donaghue, James A., 12 Underhill av
De Waltoff, D., 270 A Ninth st
Davis, W. H., 372 Stuyvesant av
De Forest, H. P., 582 Throop av

Eccles, R. G., 191 Dean st
Edson, Benj., 83 St. Marks av
Eltinge, Edgar, 2 Verona Pl
Embden, P., 123 Schermerhorn st
Emery, Z. T., 481 Washington av
Enright, Maurice, 887 Greene av
Evans, G. A., 909 Bedford av

Fairbairn, H. A., 213 McDonough st
Fairchild, P. H., Halsey st. & Nostrand av
Farrar, J. N., 1271 Broadway, N. Y.
Farrell, Jennie G., 226 E. 20th st. New York City
Ferris, George N., Flatbush, L. I.
Figuera, M., 12 Stuyvesant av
Fleming, J. W., 379 Bedford av
Fleming, L. M., 195 Adams st
Fogarty, Thomas L., 167 Union st
Fowler, Geo. R., 302 Washington av
Fowler, C. B., 752 Carroll st
Frickenstein, T., 110 Union av. E. D.
French, T. R., 150 Joralemon st
Fuhs, J., 286 Jefferson av
Fuller, S. E., 77 Hanson Place
Fuller, F. V. C., 110 St. James Place
Fitzsimmons, J. C., 455 Gold st
Frees, William A., 1138 Third av
Friend, Walter M., 2 First Place
Frazer, Homer E., 29 Lafayette av

Gilfillan, William, 98 Remsen st
Gilfillan, W. J., 79 Main st
Gillette, T. P., 195 Cayler st
Giroux, Thomas C., 142 S. 4th st
Gilbert, H. S., 311 Cumberland st
Gordon, O. A., 660 Greene av
Griffing, G. P., 597 Lorimer st
Griggs, S. C., 143 Lefferts Place
Goether, Edward, 184 Meserole st
Gunther, C. E., 151 Clinton st
Grover, H. L., 881 Quincy st
Gardiner, W. F., 175 Sixth av
Griffith, W. A., 667 Willoughby av
Gomez, Salvador, 51 Seventh av
Gardiner, S. H., 1085 Gates av
Gardner, W. C., 138 Clinton st

Hallam, A. C., 524 Bedford av
Halsey, J. C., 156 Reid av
Harrigan, John, 401 Clinton st
Harris, A. R., 74 Sands st
Haslett, Audley, 115 Clinton st
Harcourt, J. M., 305 Clinton st
Hall, G. R., 26 Schermerhorn st
Hatch, E. A., 201 Hart st
Henry, William J., 232 Macon st
Hewett, W. B., 80 St. Marks av
Hendrickson, Skidmore, 636 St. Marks av
Hopkins, G. G., 350 Washington av
Hoagland, C. N., 410 Clinton av
Hoople, H. N., 35 Kingston av
Holton, D. C., 601 Leonard st
Hunt, J. H., 1085 Bedford av
Hutchins, Alex., 796 De Kelb av
Hutchinson, W. M., 207 Clinton st
Hudnut, F. P., 19 Spencer Place
Hyde, Joel W., 215 Schermerhorn st
Hyde, Belcher, 282 McDonough st
Henry, C. C., 56 Clark st
Holsten, G. D., 340 Lafayette av
Hill, J. O. F., Coney Island
Hickok, E. P., 114 Pennsylvania av
Hufnagel, H. M., 208 Park av
Hegeman, T. B., 414 Second st
Hunter, W. L., 462 Adelphi st
Holden, F. C., 877 Union st
Hotchkiss, H. T., 520 Gates av
Hoxsie, E. H., 1 Hart st
Hamilton, A. M., 437 Classon av
Hancock, James C., 43 Cambridge Pl

Ingalls, J. W., 848 Lafayette av
Irish, L. B., 276 Ninth st

Jenkins, J. A., 271 Jefferson av
Jewett, Charles, 330 Clinton av
Jewett, F. A., 282 Hancock st
Jeffery, Reuben, 87 S. 9th st
Johnson, J. G., 153 Joralemon st
Johnson, C. H., 221 Greene av
Joerg, Oswald, 12 Schermerhorn st
Joyce, T. U., 745 Union st
Jones, Charles H., 494 Third av
Jelliffe, S. E., 196 Sixth av

Kene, J. A., 169 Willoughby st
Kennedy, J. C., 762 Willoughby av
Keyes, Jas. J., 236 17th st
King, J. S., 823 De Kalb av
Knight, E. H., Willoughby & Washington av
Kortright, J. L., 252 Rodney st
Kretzschmar, William H., 402 Washington av
Kuhn, George R., 122 Clinton av
Kuhn, L. DeB., 471 Willoughby av
Keyes, F. P., 77 Hanson Place
Kevin, J. R., 968 Bedford av
Kenny, E. J., 468 Vanderbilt av
Kuhn, J. F., 168 Jay st
Koerner, W. W., 309 Driggs av
Kidd, P. E., 173 Willoughby st
Knapp, H. I., King's Co. Hospital
Kinne, W., 46 Fourth av
Koehler, Chas. G., 313 S. 5th st

Lamadrid, J. J., 412 Greene av
Lane, W. B., 367 Greene av
Law, Geo. E., 114 Pennsylvania av
Lewis, E. A., 102 Pierrepont st
Lester, J. C., 406 Clinton st
Leonard, A. S., 131 McDonough st
Lennox, R., 23 Schermerhorn st
Little, W. A., 923 Bedford av
Little, Frank, 114 Montague st
Lloyd, T. M., 125 Pierrepont st
Loewenstein, H., 223 Bushwick av
Lucas, D. F., 552 Pacific st
Lawrence, A. W., 203 Bedford av
Livingston, Jos. A., 192 Wyona st
Lauria, Leon, 279 Hewes st
Lester, J. G., 1127 Penn st
Langstaff, J. E., 19 Seventh av
Lawrence, J. N., 58 Sands st

Maddren, William, 1 Hanson Pl
Mason, L. D., 171 Joralemon st
Matheson, A. Ross, 337 Union st
Matheson, Arthur, 139 Montague st
Matson, Nathaniel, 415 Greene av
McCorkle, J. A., 149 Clinton st
McLean, H. C., 101 Sixth av
McNaughton, George, 227 Greene av
McManus, James, 445 Fourth av
McPhail, L. C., 127 Pierrepont st
McEvitt, J. C., 407 Clinton st
McClelland, L. A., 167 Hull st
Mann, C. S., 480 *a* Greene av
Mead, R. M., 337 Union st
Merzbach, Joseph, 144 Wyckoff st
Meeker, L. E., 956 Gates av
Miller, F. H., 39 Pennsylvania av
Minard, E. J. Chapin, 243 Quincy st
Millington, W. F., 326 *a* Ninth st
Moitrier, William, 46 Stagg st
Mosher, Eliza M., 181 Joralemon st
Myerle, David, 135 Rodney st
Morton, Henry A., 266 Clinton st
Marshall, J. H., 536 Monroe st
Miller, F. P., 282 Stuyvesant av
Moser, J. M., 158 Ross st
Meara, J. A., 4 Lafayette av
Mansfield, Francis, 140 Berkeley Pl
Morton, W. A., 324 Gold st
Morrison, R. J., 354 Tompkins av
Mosher, E. B., 217 Schermerhorn st
Milbury, Frank S., 434 Jefferson av
Malone, J. W., Bensonhurst, N. Y.
Mallett, E. P., 104 First Place
McGuire, C. F., 101 Second Place
Magilligan, F. J., 135 Bergen st
Maddock, George F., 607 Macon st

Mallett, George H., 104 First Place
Maine, Hallock R., 24 Seventh av
Miller, L. H., 391 Lewis av
McEvitt, James M., 407 Clinton st
Mathews, H. C., 894 Quincy st
Magilligan, L. P., 56 Berkeley Place
Moore, John W., 444 Pacific st
Macumber, John L., Bedford & Lafayette avs
Mattison, J. B., 188 Prospect Place
Merritt, John, 842 President st

Newman, F. R., 135 Madison st
Nichols, Hayden, 289 Baltic st
North, N. L., Sr., 627 Bedford av
North, N. L., Jr , 118 Hooper st
Northridge, W. A., 366 Schermerhorn st
Neuss, W., 248 Central av
Noss, Henry, 328 Jay st
Nehrbas, Fred M., Kings County Insane Asylum, Flatbush
Napier, C. D., 473 Franklin av
Nichols, Lewis L., 329 Macon st
Northridge, T. H., 320 Cumberland st

O'Connel, J. F., 159 Remsen st
O'Grady, J., 130 Sands st
Olcott, Cornelius, 572 Bedford av
Olmstead, S. H., 404 Clinton st
Ormiston, Robert, 117 S. Elliot Place
Ostrander, J. W., 95 Clark st
Ostrander, George A., 61 Greene av
Otterson, Andrew, 97 Sixth ave
Otterson, W. C., 144 Pierrepont st
Owen, May R., South 5th st
O'Sullivan, G. B., 126 William st
Olcott, Charles A., 572 Bedford av
O'Brien, Walter, 165 Baltic st

Paine, A. R., 99 Lafayette av
Palmer, Ernest, 155 Clinton st
Page, E. D., 297 De Kalb av
Parrott, M. E., 379 Jefferson av
Peacock. J. M., 247 Madison av
Pilcher, L S., 145 Gates av
Pratt, W. H. B., 94 Sixth av
Pratt, A. M., 54 Arlington av
Prout, J. S., 26 Schermerhorn st
Prendergast, P. J., 531 Henry st
Pray, S. R., 523 Bedford av
Praeger, H. F., 797 Quincy st
Parshall, George H., 173 53d st
Pearson, L. W., 45 Third Place
Price, H. R., 485 Franklin av
Peterman, C. P., 826 Lafayette av
Pomeroy, Ralph H., 137 Berkeley Pl
Paulson, John J., 335 15th st
Pollock, J. O., 25 Seventh av
Pyles, Marian, 427 Nostrand av
Peele, Frances, 220 Schermerhorn st
Pierce, G. H., 76 S. James Place
Pearce, Eugene F., 95 Henry st
Pettit, H. S., Adelphi Academy

Quinn, J. R., 449 Lafayette av

Rappold, J. C., 750 Flushing av
Raymond, J. H., 173 Joralemon st
Rand, H. W., 147 Clinton st
Raub, Joseph M., 295 Clinton st
Rankin, John, 302 Sumner av
Read, Henry N., 339 Clinton st
Reese, W. W., 175 Hicks st
Reynolds, Edwin, 140 Lafayette av
Rendell, John, 635 Bedford av
Reed, Henry B., 12 Verona st
Richardson, J. E., 125 S. Oxford st
Risch, H. F. W., 208 17th st
Ritter, A. H., 262 Hewes st
Rooney, A. J., 226 17th st
Rochester, T. M., 326 De Kalb av
Ross, F. H., 128 Sands st
Rowe, Anna Forrest, 16 Spencer Pl
Roby, J. W. E., 484 Bedford av
Rae, Alex., 20 Clinton st
Risch, O. E. F., 208 17th st
Robertson, Victor A., 777 *a* Union st
Rickard, Wilbur L., 651 Hancock st
Rappold, J. C., Jr., 750 Flushing av
Roache, James A., 970 Bedford av
Royce, Robert S., 343 Franklin av
Rankin, W. H., 370 Tompkins av
Robbins, U. S., Blythebourne, L. I.
Reed, F. E., 585 Madison st
Richardson, B. H., 284 Stuyvesant av
Rogers, H. C., 377 Gates av

Santoire, S., 148 Clinton st
Schenck, P. L., 60 S. Marks av
Schenck, Tunis, New Utrecht
Schlatter, C. B., 158 17th st
Schapps, J. C., 498 Bedford av
Scrimgeour, R., 752 Carroll st
Schroeder, William, 339 President st
Schmetzer, G., 734 Flushing av
Shaw, J. C., 2 Sidney Place
Shepard, A. W., 126 Willoughby st
Sherwell, Sam., 33 Schermerhorn st
Sherman, W., 336 Ninth st
Shepard, C. H., 81 Columbia Heights
Shoop, Fred. J., 91 Macon st
Shaw, Frank W., 327 Greene av
Skene, A. J. C., 167 Clinton st
Smith, Joseph E., 92 Lee av
Spencer, Wm. E., 293 De Kalb av
Sparks, Agnes, 18 Hanson Place
Spier, S. Fleet, 162 Montague st
Sterling, J. H., 227 Schermerhorn st
Stone, R. H., 178 Jay st
Stuart, T. H., 123 Joralemon st
Stub, Arnold, 84 Sixth av
Steinke, Carl H. C., 220 17th st
Stratton, William E., 71 Seventh av
Sullivan, J. D., 74 McDonough st
Swalm, W. F., 118 Lafayette av
Sauer, C. T., 433 Tenth st
Sands J. H. E., 701 Fourth av
Skene, William H., 167 Clinton st

Sloat, H. M., 149 Van Buren st
Schauf, Adam, 699 Willoughby av
Stewart, W., 188 State st
Sheppard, John E., 175 Remsen st
Sturges, Purdy H., 440 Ninth st
Scott, Peter, 128 Reid av
Schirmer, W. C., 366 Grand st
Sheldon, C. W., 860 St. Marks av
Schelling, H. L., 841 Willoughby av
Smith, J. Wheeler, 1120 Herkimer st
Smylie, A. E., 124 Penn st
Seymour, Wilbur H., Kings County Hospital, Flatbush
Sherman, A. L., 325 Ninth st
Smith, E. F., 177 Putnam av
Straub, H. H., 324 S. 5th st
Simmons, Warren S., Jr., St. John's Hospital
Sullivan, Wm. E., 528 Henry st
Shawe, James H., 280 Clinton st
Shlevin, H. S., 188 Bedford av
Staebler, William, 690 Macon st
Sharpe, F. M., 134 So. Oxford st
Suydam, W. H., 139 Montague st
Steers, Wm. Henry, 213 Spencer st
Speer, H. B., 728 Carroll st

Terry, C. H., 540 Washington av
Topham, T. W., 194 Schermerhorn st
Treadwell, G. H., 463 Gates av
Turner, H. C., 91 First Place
Tuthill, J. Y., 100 Ft. Green Place
Tucker, H. A., Jr., 393 Clinton and Union sts
Turner, W. J., 105 Clinton st
Townsend, Palmer, 535 Greene av
Truex, S. P., 283 Franklin av
Toney, W. S., 81 Reid av
Thomas J. C., 1280 Herkimer st

Van Cott, J. M., Jr., 122 Joralemon st
Van Kleck, R. L., Gravesend, L. I.
Van Ness, John, 942 Bedford av
Von Glahn, John, 49 Sands st
Van Deusen, J. W., 901 Bedford av

Wackerhagen, G., 326 Schermerhorn st
Wallace, W., 183 Congress st
Wade, J. E., 904 Lafayette av
Wade, J. D., 252 South 9th st
Westbrook, B. F., 174 Clinton st
West, F. E., 29 Schermerhorn st
Welty, G. W., 500 Clinton st
Westbrook, G.R.175 Schermerhorn st
Weygandt, F., 645 Bedford av
Wells, Thomas L., 883 St. Marks av
Wight, Jarvis S., 30 Schermerhorn st
Wilbur, J. G., 544 Washington av
Wilde, Thomas, 121 Seventh av
Williams, H. F., 363 Grand av
Winfield, James McF., 1255 Pacific st
Woolley, D. Morris, 310 Sumner av
Wunderlich, F., 165 Remsen st
Waugh, E. W., 167 Union st
Walsh, J. E., 488 *a* 17th st
Wood, W. I., 207 Hart st
Warbasse, James P., 109 Gates av
Wallace, Henry, 183 Congress st
Wilson, F. E., 1242 Bushwick av
Weisbrod, Frederick, 9 Lewis ave
Ward, George G., 146 Montague st
Worden, James B,, 254 Carlton av
Williams, George A., 449 Hancock st
Williams, G. S., 1038 Greene av
Wood, Walter C., 28 Herkimer st
Wood, James, 162 St. Johns Place
Westbrook, R, W., 1265 Bedford av
Waterman, J. S., 520 Nostrand av
Wells, Joseph E., 410 Clinton st
Winter, F. G., 18 Patchen av
Wright, E. W., 135 Remsen st
Wood, F. J., 150 Washington av
Wilson, E. H., 194 Keap st
Webber, Ashley A., 168 N. 6th st
Warner, H. S., 372 Lewis av

York, Thomas A., 409 Bergen st

Zabriskie, J. L., Flatbush, L. I.
Zellhoefer, C., 175 South 4th st

Corresponding Members.

Coombs, R. C. F., Woodhaven, L. I.
Mann, Jno., Jericho, L. I.
Barns, George R., Harriman, Tenn.
Hudson, N. H., 1811½ Third ave., Birmingham, Ala.
McCatty, A. J. C., Montego Bay, Jamaica, W. I.
Leffingwell, Albert, Summit, N. J.
Meynen, George K., Jamaica, L. I.
Oliver, Charles A., 1507 Locust st., Philadelphia, Penn.
Gray, London Carter, 16 East 49th st., New York city
Gorton, Elliott, Morris Plains, N. Y.
Swan, Robert, Sag Harbor, N. Y., Box 340
Burns, Arthur E., Tacoma, Wash.

Number of Members, 504.

MEDICAL SOCIETY OF THE COUNTY OF LEWIS.

(Organized January 8, 1861.)

MEETINGS.—Annual, fourth Tuesday in June; semi-annual, third Tuesday in December; quarterly, fourth Tuesday in March and September.

Officers.

F. A. Crane, *President.* F. E. Jones, *Vice-President.*
W. O. Hubbard, *Secretary.* W. H. Johnson, *Treasurer.*
Delegate to the State Medical Society: C. P. Kirley.

Members.

R. H. Ash, Port Leyden
F. A. Crane, Lowville
A. H. Crosby, Lowville
Charles E. Douglass, Lowville
G. P. English, Boonville
David Faudry, Watertown
W. O. Hubbard, Lowville
James Z. Hunt, Lowville
W. W. Jamieson, Syracuse
W. H. Johnson, Port Leyden
F. E. Jones, Beaver Falls
Albert A. Joslin, Watertown
C. P. Kirley, Lowville
C. H. Merriam, Locust Grove
S. H. Murphy, Glendale
D. L. Murray, Croghan
W. W. Nelson, Constableville
Laurentine Rouchelle, Croghan
Sarah E. Simonet, Croghan
R. A. Stevens, Carthage
O. O. Stowell, Watertown
P. H. Zierolshofen, Croghan
Number of Members, 22.

MEDICAL SOCIETY OF THE COUNTY OF LIVINGSTON.

(Organized June, 1806.)

MEETINGS.—Annual, third Tuesday in May; quarterly, third Tuesday in August, November and February.

Officers. (May, 1894.)

M. E. Dickinson, *President.* W. K. McGowan, *Vice-President.*
F. J. Bowen, *Secretary.* F. H. Moyer, *Treasurer.*
Censors: F. B. Dodge, J. P. Brown, R. W. Green, C. H. Richmond.
Delegate to State Medical Society: F. B. Dodge.

Members.

F. J. Bowen, Tuscarora
John P. Brown, Nunda
A. L. D. Campbell, Mt. Morris
J. W. Craig, Geneseo
J. E. Crisfield, Dansville
John Denton, Moscow
M. E. Dickinson, Dansville
F. B. Dodge, Mt. Morris
Fred. R. Driesbach, Dansville
I. A. M. Dyke, York
J. G. Filkins, York
Robert W. Green, Geneseo
Jacob M. Hagey, Mt. Morris
G. G. Jones, Scottsburg
B. T. Kneeland, Dalton
W. E. Lauderdale, Jr., Geneseo
J. H. Losey, Conesus
W. K. McGowan, Conesus
R. J. Menzie, Caledonia
F. H. Moyer, Moscow
William Nesbit, Avon
Charles V. Patchin, Dansville
F. M. Perine, Dansville
Edwin C. Perry, Avon
John C. Preston, Avon
C. H. Richmond, Livonia
M. C. Rowland, Geneseo
G. W. Squires, East Avon
Addison P. Wisner, Nunda
Number of Members 29.

Deceased: W. E. Lauderdale, Geneseo, December 28, 1893, æt. 88.
Removed: Clement C. Goodrich, of Avon.

MEDICAL SOCIETY OF THE COUNTY OF MADISON.

MEETINGS.— Annual, second Tuesday in July ; semi-annual, in January at the call of the President.

Officers. (July, 1891, list not revised.)

W. H. Griffin, *President.* A. A. White, *Vice-President.*
Gilbert Birdsall, *Secretary.* I. N. Goff, *Treasurer.*
Censors: Edgar L. Miller, H. T. Carter, J. W. Knapp, A. A. White.
Delegate to State Medical Society: C. B. Wilcox.

Members.

J. B. Allen, New Woodstock
E. P. Bailey, Oneida
F. D. Beebe, Hamilton
M. M. Billington, Chittenango
Gilbert Birdsall, North Brookfield
H. Clift Brown, Brookfield
O. W. Burhyte, Brookfield
H. W. Carpenter, Oneida
D. D. Chase, Morrisville
Amos Cheesebrough, Edmeston, Otsego Co.
Silas S. Clark, De Ruyter
F. E. Dewey, Peterboro
J. R. Eaton, Chittenango
Charles L. Furman, Hamilton
E. H. Galloway, Eaton
I. N. Goff, Cazenovia
Carl D. Green, Poolville
L. P. Greenwood, Erieville
W. H. Griffith, Munnsville
Horace Halbert, Canastota
H. F. Hubbard, Verona, Oneida Co.
Milton B. Jarvis, Canastota
M. R. Joy, Perrysville
J. W. Knapp, Canastota
Othello Langworthy
Edgar L. Miller, Eaton
H. P. Mead, Morrisville
S. P. Moore, Munsville
George B. Munger, Canastota
A. R. Nicholson, Madison
C. H. Perry, Oneida
Charles H. Ransom, Erieville
A. D. Smith, New Woodstock
William Taylor, Canastota
Amelia Tompkins, Hamilton
H. D. Ure, Wampsville
L. A. Van Wagner, Sherburne, Chenango Co.
C. B. Wilcox, Earlville
A. A. White, Cazenovia
H. H. White, Earlville

Number of Members, 40.

MEDICAL SOCIETY OF THE COUNTY OF MONROE.

MEETING.— Annual, last Wednesday in May.

Officers. (May 30, 1893.)

H. S. Durand, *President.* Wallace Sibley, *Vice-President.*
Frederic Remington, *Secretary.* J. H. McCort, *Treasurer.*

Delegates to State Medical Society: Henry S. Durand, Marion Craig Potter, Frederic Remington.

Members.

(Where no town is mentioned, Rochester is to be understood.)

F. D. Andrew, 71 East av
E. B. Angell, 294 Alexander st
M. E. Artman, 34 N. Fitzhugh st
Azel Backus, 78 Eagle st
W. C. Bailey, Clifton
Evelyn Baldwin, 317 West av
E. P. Ballantine, State Hospital
C. C. Barber, 149 Hudson st
W. N. Barrow
G. L. Beach, 91 South av
H. S. Beahan, 143 West av
James Beahan, 343 West av
W. D. Becker, 56 Meigs st
J. C. Bowen, Klink near Monroe av
A. N. Braham, Brockport
John D. Briggs, 43 S. Clinton
C. M. Briggs, Fairport
W. H. Briggs, 138 E. Main st
T. A. Brown, Brighton
W. M. Brown, Brighton
James C. Buckley, 127 E. Main st
J. J. A. Burke, 65 East av
S. H. Burmingham
Emily A. Cady, 234 Lake av
Chas. McD. Cameron, 106 Lake av
A. B. Carpenter, Greece
A. M. Carpenter, Greece
P. D. Carpenter, Pittsford
George G. Carroll, 8 Sophia st
A. C. Cartwright, 82 Ambrose st
J. W. Casey, 25 Sophia st
Morey S. Collier, 1 Boston court
Charles G. Combs, 185 Monroe av
W. L. Conklin, 96 South ave
J. A. Cormier, 355 Central av
H. H. Covell, 96 East av
J. B. Cowles, Fairport
Anna Craig, 50 S. Clinton st
James F. Crowley, 369 State st
J. R. Culkin, 414 Lyell av
D. F. Curtis, 89 South av
A. Dann, 128 E. Main st
C. E. Darrow, 116 East av
James C. Davis, 138 E. Main st
S. W. Davison, 142 State st
C. A. Dewey, 78 S. Fitzhugh st
Sarah R. A. Dolly, 52 East av
Frank F. Dow, 42 South av
J. D. Dunning, Webster
H. S. Durand, 87 S. Fitzhugh st

Edgar H. Earl, 413 Lyell av
Frederick East
R. M. Elliot, State Hospital
W. S. Ely, 78 S. Fitzhugh st
S. L. Elsner, N. St. Paul st
John J. Evans, 123 Front st
Porter Farley, 47 Tremont st
H. M. Fenno, 77 W. Main st
Jas. H. Finnessy, 375 N. Clinton
J. B. Finnecone, Mendon, N. Y.
John W. Flick, Honeoye Falls
Chas. Forbes, 289 West av
G. W. Foster, 62 State st
George P. French, 234 Adams st
Robert T. French, 209 Alexander
W. S. Fuller, Fairport
L. T. Gandy, Chili
Frederick Geare, 158 West av
Horace Gee, Lake av
F. H. Goddard, 265 Meigs st
George Goler, 54 S. Fitzhugh st
H. C. W. Graham, W. Webster
Erlo P. Gray, Culver Park, cor. E. av.
O. Groves, 17 Central Park
P. C. Guinan, 1 Cataract st
A. R. Gumberts, 48 Chatham st
A. W. Haenckell, 116 Sophia st
G. S. Hall, 116 East ave
Eugene F. Hamburg, Genesee st, near Brooks ave
Sumner Hayward, 84 East av
W. J. Herriman, 161 State st
S. A. Holman, North Parma
B. L. Hovey, 34 N. Fitzhugh st
Edward Howard, Churchville
E. H. Howard, Rochester State Hospital
W. R. Howard, 392 E. Main st
W. J. Howe, Scottsville
H. B. Howell, 778 E. Main st
Loren W. Howk, West av
J. M. Ingersoll, 275 Monroe av
Thomas Jameson, 257 West av
Ira T. Johnson, 138 Fulton av
Frank A. Jones, 155 Lake av
S. C. Jones, 21 East av
Wm. B. Jones, 213 Lake ave
J. J. Kempe, 14 Grove st
N. F. Kiefer, 588 N. Clinton st
W. G. Lacy, Scottsville
W. H. Lakeman, 97 Bolivar st
David Little, 162 Plymouth av
S. W. Little, 162 Plymouth av
M. L. Lord, 27 Hawthorn st
C. H. Losey, 20 Phelps ave
J. M. Magil, Fairport
A. P. Maine, Webster
F. W. Maloney, 332 West av
F. A. Mandeville, 98 North av
H. J. Mann, Brockport
W. B. Mann, Brockport
D. G. Mason, East Henrietta
M. C. Mason, 226 Lyell av
J. McCauley, 349 Monroe av
J. H. McCort, 77 East av
H. B. Miner, West Mendon
E. M. Moore, 74 S. Fitzhugh st
E. M. Moore, Jr., 74 S. Fitzhugh st
R. M. Moore, 74 S. Fitzhugh st
John F. Mulherin, 329 Plymouth av
E. W. Mulligan, 290 West av
H R. Nettleton, 270 Lake ave
J. B. Nold, 165 North ave
T. A. O'Hara, 97 State st
E. S. Olin, 178 Andrews st
John E. Ottaway, Charlotte
Joseph Pease, Hamlin
S. Perry, 103 S. Fitzhugh st
H. C. Phillips, 5 Lyell ave
S. A. Pierce, South av
G. H. Pope, 34 S. Union st
Ida May Porter, 34 Monroe av
E. B. Potter, State Hospital
M. C. Potter, 62 S. Clinton
Ezra B. Pratt, Fairport
B. I. Preston, 31 Chestnut st
Edward J. Price, 88 Nassau st
J. Ready
Charles Reitz, Webster
Frederic Remington, 275 West av
A. L. Richman, E. Kendall
C. E. Rider, 53 S. Fitzhugh st
Wheelock Rider, 53 S. Fitzhugh st
P. E. Rivard, 144 E. Main st
A. S. Rockwell, 46 Elizabeth st
Moses Rosenberg, 374 Central av
John O. Roe, 28 N. Clinton st
L. W. Rose, 36 Park av
J. L. Roseboom, 628 E. Main st
T. D. Rupert, Mendon
Martin Rutherford, 23 Campbell st
F. H. Sawers, 41 State st
H. Schoonmaker, 19 Glenwood
Justin Schopp, 127 E. Main st
Q. C. Schuhart, 248 St. Joseph st
Anna H. Searing, 52 East av
H. T. Sedgwick, Lyell av
H. P. Sheldon, 16 State st
J. F. Sherman, 529 North st
W. Sibley, 95 Lake av
Mary J. Slaight, 32 S. Clinton st
W. C. Slayton, Spencerport
N. G. Soble, 7 University av
L. J. Somers, 23 South st
O. T. Stacy, 284 Alexander st
Wm. Stanton, 12 Gorham st
J. A. Stapleton, 61 East ave
Mary E. Stark, 27 Rowley st
D. Starkey, Chili
C. S. Starr, 95 North av
Peter Stockschlader, 161 South av
E. V. Stoddard, 68 S. Washington st
J. E. Sutton, Scottsville
T. O. Tait, 18 Marietta st
D. C. Throop, 136 North av
Harriet M. Turner, 21 Williams st

P. G. Udell, Spencerport
J. C. Urquhart, 22 S. Clinton
D. A. Vanderbeck, 139 North st
L. Allen Walker, 281 West av
George Woldron, 408 Plymouth av
Wm. T. Wallace, 17 Hudson st
W. W. Ward, 35 East av
John E. Weaver, 385 Monroe av
Wm. H. Webb, 14 Windsor st
J. W. Whitbeck, 209 East av
E. E. Whitcomb, 232 E. Main st
L. A. Wiegel, 54 N. Clinton st
C. W. Wilbor, 763 N. St. Paul
H. T. Williams, 19 Clinton Place
W. W. Williams, N. Parma
Benjamin Wilson, 139 Lake av
W. B. Wollf
C. D. Wooden, 129 Frank st
Lettie H. Woodruff, 223 Plymouth av
Charles D. Young, 31 Caledonia av
F. W. Zimmer, 45 Monroe av
John Zimmer

Number of Members, 197.

MEDICAL SOCIETY OF THE COUNTY OF MONTGOMERY.

(Organized July, 1806.)

MEETINGS.—Annual, second Wednesday in December; semi-annual, second Wednesday in June; quarterly, second Wednesday in September and March.

Officers. (December, 1893.)

H. W. Post, *President.*
H. L. Furbeck, *Vice-President.*
Charles Stover, *Secretary.*
E. T. Rulison, *Treasurer.*

Delegate to State Medical Society: C. F. Timmerman.

Members.

Louis Aiken, Amsterdam
Douglas Ayres, Fort Plain
Edmond F. Bronk, Amsterdam
I. I. Buckbee, Fonda
C. W. DeBaun, Fonda
Wm. H. DeLamater, Minaville
J. R. Fairbanks, Amsterdam
S. H. French, Amsterdam
H. L. Furbeck, St. Johnsville
Ezra Graves, Amsterdam
T. Hyland, Amsterdam
R. G. Johnson, Amsterdam
C. M. Klock, St. Johnsville
John W. Kniskern, Amsterdam
C. G. Lewis, Amsterdam
S. D. Lewis, Amsterdam
Daniel M. McMartin, Amsterdam
Jay J. Miller, Amsterdam
J. C. O'Brien, Amsterdam
John Parr, Buell
Wm. J. Peddie, Fultonville
Wm. R. Pierce, Port Jackson
Henry W. Post, Fultonville
Wm. H. Robb, Amsterdam
E. E. Rulison, Amsterdam
E. T. Rulison, Amsterdam
F. E. Simons, Canajoharie
A. V. H. Smyth, Amsterdam
Augusta A. Steadman, Amsterdam
Charles Stover, Amsterdam
M. F. Sweatman, Amsterdam
Peter L. Suits, Tribe's Hill
D. M. Taylor, Amsterdam
D. N. Taylor, Canajoharie
C. F. Timmerman, Amsterdam
Christian C. Vedder, St. Johnsville
S. A. Wessels, Canajoharie

Number of Members, 38.

THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

MEETINGS.—Annual, fourth Monday in October; stated meetings, the fourth Monday in each month, June, July and August excepted, at the New York Academy of Medicine, 17 West Forty-third street.

Officers. (1894.)

Seneca D. Powell, *President.*
Henry D. Chapin, 1*st Vice-President.*
C. H. Avery, *Secretary.*
Egbert H. Grandin, 2*d Vice-President.*
W. E. Bullard, *Assistant Secretary.*
John S. Warren, *Treasurer.*

Censors: Alexander S. Hunter, Chas. H. Knight, R. Van Santvoord, Frederick Peterson, Edward D. Fisher.

Editor: Daniel Lewis.

Committee on Hygiene: Wm. A. Ewing, T. B. Bissell, H. J. Boldt, E. N. Liell, T. K. Tuthill.

Committee on Ethics: Wm. M. Polk, S. S. Burt, A. N. Brockway, W. H. Katzenbach, A. M. Jacobus.

Committee on Prize Essays: Joseph D. Bryant, G. M. Hammond, Virgil P. Gibney.

Committee on Auditing: J. E. Nichols, Carl Beck.

Delegates to State Medical Society (1893 *to* 1896):

Charles H. Avery, George T. Elliott, James Morton,
Joseph B. Bissell, J. B. Emerson, James E. Newcomb,
Herman J. Boldt, Arthur L. Fisk, James E. Nichols,
A. H. Buckmaster, J. A. Fordyce, W. O. Plympton,
W. Franklin Chappel, Landon Carter Gray, Barney Sachs,
Lewis A. Coffin, Henry N. Heineman, Judson C. Smith,
Carter S. Cole, James E. Kelly, Edward W. Thompson,
Alexander Dallas, Frank N. Lewis, Wisner R. Townsend,
Theodore Dunham, Edward N. Liell, C. A. Von Ramdohr,
George M. Edebohls, T. Halsted Myers, George T. Wetmore.

Members.

Robert Abbe, 11 W. 50th st
Frank Abbot, 22 W. 40th st
Frank Abbott, Jr., 49 W. 57th st
George E. Abbott, 139 W. 82d st
S. H. Abkarian, 32 W. 32d st
Amelia F. Abrams, 134 E. 87th st
Onofrio Abruzzo, 95 Park st
Calvin Thayer Adams, 13 W. 33d st
Lucius C. Adamson, Ward's Island
Isaac Alder, 12 E. 60th st
David H. Agan, 1074 Lexington av
Aristides Agramonte, 143 W. 97th st
J. Francis Aitken, 220 E. 35th st
Welcome T. Alexander, St. Nicholas av and W. 157th st
Charles Lewis Allen, 17 E. 38th st
Charles W. Allen, 696 Madison av
John E. Allen, 470 W. 144th st
Thomas H. Allen, 52 W. 45th st
Henry Altshul, 153 W. 76th st
J. R. Alverez, 305 E. 86th st
C. G. Am Ende, 266 W. 42d st
H. A. C. Anderson, 118 E. 86th st
James H. Anderson, 30 University pl
Joseph Anderson, 363 W. 56th st
Joseph Alfred Andrews, 9 W. 22d st
Frederick C. Anthes, 159 E. 82d st
S. T. Armstrong, 166 W. 54th st
Moses Aronson, 536 5th st
Morris J. Asch, 5 W. 30th st
Edward J. Aspell, 357 W. 56th st
John Aspell, 357 W. 56th st
Augustus Assenheimer, 323 E. 51st st
Megerdich Attarian, 402 E. 9th st
David P. Austin, 251 W. 25th st
James E. Austin, 105 W. 71st st
Charles H. Avery, 238 E. 18th st
Edward A. Ayers, 151 E. 34th st
James H. Bache, 335 W. 51st st
Eugene O. Bachmann, 306 W. 33d st
Gorman Bacon, 63 W. 54th st
Clinton L. Bagg, 67 W. 45th st
Thomas S. Bahan, 257 W. 14th st
James L. Bailey, 206 E. 105th st
Pearce Bailey, 50 E. 31st st
Thomas H. Bailey, 1 E. 30th st
Mercy N. Baker, 303 E. 18th st
A. Brayton Ball, 42 W. 36th st
Henry Balser, 606 E. 9th st
William Balser, 218 E. 13th st
William L. Baner, 38 W. 40th st
Richard T. Bang, 139 W. 11th st
L. Bolton Bangs, 31 E. 44th st
Francis M. Banta, 50 Jane st
Julius Baran, 223 E. 72d st
Justin L. Barnes, 3 E. 41st st
C. C. Barrows, 7 E. 36th st
Daniel E. Barry, 447 Lexington av
William A. Bartlett, 7 W. 49th st
Joshua L. Barton, 57 E. 55th st
Simon Baruch, 51 W. 70th st
John Bates, 440 W. 23d st
W. H. Bates, 64 E. 58th st
Frederick M. Bauer, 225 E. 86th st
Ferdinand Beach, 201 W. 44th st
Wooster Beach, 589 E. 140th st
Alex. Wm. Beck, 27 7th st
Carl Beck, 37 E. 31st st, bet. Madison and 7th av
John N. Beekman, 10 E. 12th st
Charles S. Benedict, 339 W. 19th st
Franklin Bennett, 277 E. Broadway
Walter Bensel, 226 W. 75th st
George K. Bentz, 82 2d av
T. Passmore Berens, 4 E. 43d st
Charles Bernacki, 36 W. 28th st

John Bettini-Moise, 20 W. 10th st
Thomas Walton Bickerton, 165 W. 82d st
Frederick Bierhoff, 170 W. 126th st
Augustus E. Bieser, 256 W. 54th st
George Bieser, 256 W. 54th st
John Haskell Billings, 240 Madison av
Cornelius E. Billington, 85 Madison av
Arthur Bird, 35 W. 31st st
J. T. Joseph Bird, 308 W. 123d st
Ernest R. Birkins, 238 W. 132d st
Louis Faugeres Bishop, The Oakdale, 36 W. 35th st
Joseph B. Bissell, 37 W. 50th st
Mary T. Bissell, 142 W. 44th st
Constantine Bjerring, 229 E. 58th st
Carrie L. Black, 114 W. 123d st
Emily Blackwell, 53 E. 20th st
Alonzo Blauvelt, 338 W. 12th st
Asher Bleiman, 244 E. 49th st
George D. Bleything, 1008 Madison av
Moritz Bloch, 337 E. 58th st
Frank J. Blodgett, 140 W. 72d st
Mark Blumenthal, 987 Madison av
George W. Bogart, 151 E. 51st st
Sylvester S. Bogert, 219 E. 17th st
Edward A. Bogue, 63 W. 48th st
Herman J. Boldt, 54 W. 51st st
I. Edwin Booth, 41 W. 24th st
J. Arthur Booth, 419 Madison av
R. O. Born, 163 W. 34th st
Francke H. Bosworth, 26 W. 46th st
Frank Archer Bottome, 41 W. 126th st
George H. Bottum, 17 E. 46th st
James W. Bowden, 38 Park Row
Fred. J. Bowles, 154 W. 93d st
Arthur Albert Boyer, 33 W. 33d st
Nathan Gross Bozeman, 9 W. 31st st
Max Bracker, 97 2d av
Simeon Cole Bradley, Marion avenue, Fordham
Edward Bradley, 19 W. 30th st
Elizabeth Neely Bradley, 132 W. 58th st
Laban L. Bradshaw, 41 E. 72d st
Alfred V. Brailly, 275 W. 118th st
John Winters Brannan, 54 W. 11th st
John H. Branth, 420 W. 51st st
James A. Breakell 249 W. 52d st
Siegmund Brittenfeld, 180 E. 75th st
William Wilson Bremner, 210 W. 42d street
Edwin V. Brendon, 1½ Charlton st
Thomas J. Brennan, 144 E. 89th st
Wm. J. Brickelmaier, 41 W. 49th st
Charles K. Briddon, 13 E. 33d st
Arlanden C. Bridges, 363 W. 28th st
Eugene Z. Brievogelle, 324 9th av
Nathan E. Brill, 805 Lexington av
Morris W. Brinkmann, 1443 Lexington av
E. L. Macomb Bristol, 25 E. 30th st
A. Norton Brockway, 50 E. 126th st
Fred. J. Brockway, 105 W. 74th st
Geo. L. Brodhead, 140 W. 85th st
Edward B. Bronson, 123 W. 34th st
George Washington Brooks, 38 W. 32d st
G. Frederick Brooks, 38 W. 32d st
Wm. R. Bross, 120 Broadway
William R. Broughton, 156 Madison avenue
Charles Henry Brown, 25 W. 45th st
Dillon Brown, 40 E. 57th st
Ethel Doty Brown, 210 E. 16th st
F. Tilden Brown, 40 E. 31st st
Wm. Bedford Brown, 14 W. 33d st
John H. Brower Browning, 10 E. 43d st
Charles E. Bruce, 456 Lexington av
Alfred F. Brugman, 588 E. 141st st
J. Conger Bryan, 367 W. 48th st
Joseph D. Bryant, 54 W. 36th st
Louise Fiske Bryson, 56 W. 46th st
Alexander Buchanan, 358 W. 30th st
Augustus F. Büchler, 251 W. 45th st
Albert H. Buck, 19 E. 38th st
Francis D. Buck, 158 W. 48th st
Charles A. Bucklin, 208 W. 42d st
A. H. Buckmaster, 52 E. 31st st
Charles T. Buffum, 5 E. 27th st
L. Duncan Bulkley, 4 E. 37th st
Charles Stedman Bull, 47 W. 36th st
William T. Bull, 35 W. 35th st
William E. Bullard, 112 E. 40th st
William M. Bullard, 302 Madison av
T. Hamilton Burch, 41 W. 34th st
Thomas H. Burchard, 7 E. 48th st
L. Burgheim, 176 E. 79th st
Michael Joseph Burke, 164 Hester st
Arnold Burkelman, 3 Charlton st
Herbert D. Burnham, 5 E. 125th st
Frederick A. Burrall, 48 W. 17th st
Maurice J. Burstein, 179 Henry st
Stephen Smith Burt, 37 W. 32d st
R. B. Burton, 223 E. 48th st
Thomas W. Busche, 129 2d av
Pine E. Bush, 45 Charlton st
Charles H. Bushong, 59 W. 19th st
George H. Butler, 42 E. 66th st
H. Hoyle Butts, 313 Madison av
Joseph Henry Byrne, 345 W. 51st st
Wilfred Peter Byrne, 247 W. 48th st
John M. Byron, 222 E. 15th st
Caroline A. W. Cabot, 168 W. 48th st
John Cabot, 168 W. 48th st
Herbert W. F. Cady, 121 E. 40th st
Augustus Caille 185 2d av
George W. Caldwell, 339 W. 23d st
Peter A. Callen, 25 W. 38th st
D. M. Cammann, 19 E. 33d st
John L. Campbell, 259 W. 42d st
Robert Campbell, 239 W. 135th st
William C. Campbell, 259 W. 42d st

George F. Carey, 142 E. 19th st
Randolph B. Carmichael, 38 W. 19th st
Albro R. Carman, 27 W. 127th st
Sidney Howard Carney, 201 W. 55th st
Sidney Howard Carney, Jr., 201 W. 55th st
Alfred C. Carpenter, 219 E. 19th st
Elon N. Carpenter, 138 Madison av
Frank B. Carpenter, "The Allston," 17 E. 38th st
David C. Carr, 69 W. 126th st
Walter Lester Carr, 6 E. 58th st
James S. Carradine, 171 W. 126th st
Joseph S. Carreau, 18 W. 21st st
Curtis B. Carter, 36 W. 59th st
De Lancey Carter, 1034 Park av
H. Skelton Carter, 130 E. 24th st
J. H. Carver, 41 E. 33d st
Frederick A. Castle, 55 E. 52d st
William H. Caswell, 241 W. 74th st
Charles M. Cauldwell, 16 W. 54th st
Edwin R. Chadbourne, 31 W. 25th st
George W. Chamberlain, 439 Lexington av
P. Flewellen Chambers, 26 W. 47th st
Henry Dwight Chapin, 27 W. 51st st
Walter Franklin Chappell, 22 E. 42d st
George T. Chase, 256 W. 127th st
William Earle Chase, 49 E. 126th st
Jean F. Chauveau, 31 W. 60th st
Jean F. Chauveau, Jr., 31 W. 60th st
Hobart Cheesman, 328 W. 57th st
Walter Cheyne, 142 W. 97th st
Joseph F. Chmelliček, 212 E. 70th st
T. M. L. Chrystie, 216 W. 46th st
Frank Churchill, 317 E. 86th st
William Brewster Clark, 50 E. 31st st
Leon Pierce Clark, Ward's Island
Trumbull W. Cleveland, 242 W. 43d st
Margaret A. Cleves, 68 Madison av
Geo. Place Clements, 1686 Lexington av
Brentano Clemens, 148 W. 34th st
Ernest Macdonald Clerihew, "The Windermere," 404 W. 57th st
Clement Cleveland, 59 W. 38th st
George D. Clift, "The Florence," 109 E. 18th st
Seth D. Close, 636 E. 143d st
Meredith Clymer, 65 W. 38th st
Cornelius Godfrey Coakley, 126 E. 45th st
George Henry Cobb, 46 E. 31st st
Thomas F. Cock, 175 2d av
Henry C. Coe, 27 E. 64th st
Lewis A. Coffin, 145 W. 12th st
Henry Coggeshall, "The Kensington," 102 E. 57th st
Felix Cohn, 38 E. 60th st
Salo Cohn, 443 E. 86th st
Louis Cohn, 139 E. 95th st
Carter S. Cole, Sherman Square Hotel, Grand Boulevard & 71st st
Palmer C. Cole, 254 W. 42d st
Warren Coleman, 112 E. 28th st
Wm. B. Coley, 52 W. 35th st
Christopher J. Colles, 30 W. 33d st
Howard Paxton Collins, 224½ Central av
Charles Farnham Collins, 27 W. 36th street
Joseph Collins, 43 W. 39th st
Herman L. Collyer, 109 E. 54th st
Frank C. Combes, 220 E. 112th st
John E. Comfort, 1315 Franklin av
William S. Conover, 237 W. 132d st
Harry B. Conrad, 102 E. 74th st
Herbert L. Constable, 125 W. 34th st
Edmund H. Cook, 104 Lexington av
David T. Corde, 240 W. 4th st
J. Leonard Corning, 53 W. 38th st
John B. Cosby, Barrett House
Garrett Cosine, 2150 7th av
William Cowen, 35 E. 60th st
Edwin B. Cragin, 62 W. 50th st
Henry E. Crampton, 256 W. 121st st
Floyd M. Crandall, 113 W. 95th st
John Joseph Crane, 43 W. 71st st
Reuben Cronson, 238 E. 119th st
James King Crook, 36 E. 29th st
Michael F. J. Crowley, 306 W. 21st st
Everett M. Culver, 124 W. 95th st
Andrew F. Currier, 138 Madison av
B. Farquhar Curtis, 307 Madison av
Edward Curtis, 27 Washington pl
H. Holbrook Curtis, 118 Madison av
John G. Curtis, 327 W. 58th st
Elizabeth Cushier, 53 E. 20th st
William F. Cushman, 325 W. 22d st
Condict W. Cutler, 230 W. 57th st
Markar G. Dadirrian, 73 Lex'ton av
Alexander Dallas, 65 W. 36th st
James P. J. Daly, 563 E. 150th st
Charles L. Dana, 50 W. 46th st
Annie S. Daniel, 327 E. 15th st
Frank Herbert Daniels, 126 W. 126th street
Frederic Danne, 44 W. 50th st
Thomas Darlington, Jr., Kingsbridge
Wm. Lacey Darlington, 507 Hudson street
Albert A. Davis, 119 E. 62d st
Edward A. Davis, 3 E. 41st st
E. Webster Davis, 153 W. 44th st
William C. Deane, 860 Lexington av
Wilmot W. Dees, 309 W. 26th st
William B. DeGarmo, 56 W. 36th st
Francis Delafield, 12 W. 32d st
D. Bryson Delavan, 1 E. 33d st
Edward B. Dench, 17 W. 46th st
Charles E. Denhard, 90 Madison st
Wm. Sawyer Dennett, 59 W. 45th st

Frederic S. Dennis, 542 Madison av
Emmet C. Dent, N. Y. City's Insane Asylum, Blackwell's Island
Louis De Plasse, 27 & 29 E. 27th st
Richard H. Derby, 9 W. 35th st
Leonard A. Dessar, 58 W. 49th st
S. Henry Dessau, 47 W. 56th st
William Detmold, 38 E. 9th st
J. Harvie Dew, 252 W. 54th st
A. Britton Deynard, 352 W. 51st st
R. G. L. Dieffenbach, 224 E. 48th st
Frederic H. Dillingham, 636 Lexington av
Leo Dinkelspiel, 104 W. 87th st
Frank Irving Disbrow, 107 W. 64th st
George A. Dixon, 15 W. 49th st
Geo. Sloan Dixon, 124 Lexington av
Charles H. Dockstader, 281 W. 118th st
Frederick E. D'Oench, 12 E. 28th st
Wm. Elliott Dold, Bloomingdale Boulevard & 117th st
Daniel J. Donovan, 173 E. 113th st
John H. Dorn, 51 W. 9th st
John Dorning, 252 W. 25th st
George E. Doty, 216 W. 38th st
Daniel S. Dougherty, 354 W. 42d st
O. B. Douglas, 133 E. 36th st
Charles North Dowd, 135 W. 73d st
William H. Draper, 19 E. 47th st
Henry S. Drayton, 27 E. 21st st
Alexander Duane, 25 E. 31st st
A. Palmer Dudley, 640 Madison av
C. J. Dumond, 358 W. 42d st
Edward K. Dunham, 338 E. 26th st
Theodore Dunham, 347 Lexington av
Milo M. Dunton, 37 7th st
Ghislani Durant, 12 W. 46th st
John Dwyer, 182 E. 111th st
Isadore Dyer, Skin & Cancer Hospital
Maurice B. Early, 84 Macdougal st
Emilio Echeverria, 109 E. 28th st
George M. Edebohls, 198 2d av
Carl Edel, 240 E. 34th st
J. Clifton Edgar, 115 E. 35th st
Cyrus Edson, 9 W. 49th st
Paul Ehrhart, 313 W. 30th st
Henry F. Eichacker, 66 Columbia st
Anton Eidenbenz, 248 W. 49th st
Max Einhorn, 107 E. 65th st
M. Eleazarian, 106 E. 24th st
Ellsworth Eliot, 48 W. 36th st
George T. Elliot, 14 W. 33d st
George R. Elliott, 48 E. 26th st
C. Ruxton Ellison, 206 E. 116th st
Saram R. Ellison, 266 W. 43d st
Charles P. Elwert, 148 W. 15th st
Albert Heman Ely, 19 W. 46th st
J. B. Emerson, 20 E. 30th st
J. H. Emerson, 81 Madison av
Bache Emmet, 18 E. 30th st
John Duncan Emmet, 91 Madison av
Thomas Addis Emmet, 93 Madison av
Bernhard Engelsman, 157 E. 115th st
Max Engelsman, 349 E. 52d st
Martin F. Engman, Skin and Cancer Hospital
John F. Erdmann, 141 W. 34th st
Michael Erlwein, 16 W. Manhattan st
Peter Hugo Ernst, 141 E. 16th st
G. A. Evans, 337 W. 15th st
Frank J. Eversfield, 156 W. 20th st
W. A. Ewing, 134 W. 58th st
Charles Oliver Fairbank, 25 W. 45th street
W. A. Fanning, 115 W. 63d st
J. N. Farrar, 1271 Broadway
J. O. Farrington, 1991 Madison av
Wm. H. Farrington, Astor House
M. B. Feeney, 32 E. 3d st
S. Feinberg, 148 E. 81st st
Elisha Fenn, 166 E. 90th st
John E. Ferdinand, 220 W. 127th st
James Francis Ferguson, 168 Lexington av
Jeremiah S. Ferguson, 252 W. 22d st
Jose M. Ferrer, Box 177, N. Y.
Albert W. Ferris, 12 E. 47th st
William J. Fields, 176 W. 81st st
Thomas C. Finnell, 119 Leroy st
Charles S. Fischer, Jr., 201 W. 118th st
Louis Fischer, 40 Rivington st
Siegfried Fischer, 314 E. 15th st
Edward D. Fisher, 42 W. 45th st
Arthur Fishmann, 144 Rivington st
James Porter Fiske, 328 W. 57th st
Arthur Lyman Fisk, 11 W. 50th st
Allen Fitch, 152 W. 34th st
Joseph S. Fitzgerald, 1969 7th av
Martin J. Fleming, 132 Lexington av
Walter M. Fleming, 240 5th av
William F. Flint, 37 E. 33d st
William H. Fluhrer, 479 5th av
James William Flynn, 116 E. 81st st
Francis Foerster, 39 W. 52d st
John P. Foland, 511 Hudson st
Charles M. Ford, 242 W. 135th st
James C. Ford, 332 E. 104th st
John A. Fordyce, 66 Park av
William E. Forrest, 201 Waverly pl
Frank P. Foster, 16 E. 31st st
Matthias L. Foster, 7 E. 41st st
John Fourness-Brice, White Star Dock, foot of W. 10th st
Edward P. Fowler, 38 W. 40th st
George B. Fowler, 56 W. 50th st
Andrew Jackson Fox, 120 Broadway
George Henry Fox, 18 E. 31st st
John Frank, 111 Rivington st
Edward Frankle, 217 E. 17th st
J. H. Frankenberg, 142 E. 74th st
Gustav Frauenstein, 359 W. 15th st
Gordon Frazer, 321 W. 35th st
George C. Freeborn, 215 W. 70th st
Alpheus Freeman, 123 E. 74th st
M. Nathaniel Freeman, 7 E. 92d st
Sarah Angie French, 128 W. 35th st

Wolff Freudenthal, 943 Madison av
David Froehlich, 117 E. 80th st
Richard Frothingham, 104 W. 34th st
J. Henry Fruitnight, 161 W. 57th st
Franklin C. Fry, 158 E. 34th st
Eugene Fuller, 109 E. 34th st
Robert M. Fuller, 136 W. 42d st
George C. Gage, 47 W. 49th st
Anna M. Galbraith, 68 W. 50th st
A. Ernest Gallant, 35 W. 53d st
Alfred W. Gardner, 59 W. 54th st
Iretus G. Gardner, 69 W. 105th st
Wm. S. Gardner, 415 West End av
Henry J. Garrigues, 155 Lexington av
William J. Gaudineer, 131 E. 116th st
Arpad G. Gerster, 56 E. 25th st
W. Travis Gibb, 365 Lexington av
Paul Gibier, cor. Central Park and W. 97th st
Virgil P. Gibney, 16 Park ave
Charles L. Gibson, 46 W. 33d st
Lewis M. Gibson, 357 Boulevard
J. Edward Giles, 127 E. 16th st
W. Whitehead Gilfillan, 275 Lexington av
Walter R. Gilette, 24 W. 40th st
Francis Ginnasi, 118 Macdougal st
Robert W. Glassford, 350 W. 46th st
John Gleises, 302 E. 57th st
Joseph Wm. Gleitsmann, 46 E. 25th st
Samuel Gluck, 167 E. 60th st
A. Lawrence Gnichtel, 437 W. 44th st
Augustin H. Goelet, 351 W. 57th st
Herman Goldenberg, 22 E. 63d st
Marcus K. Goldsmith, 1694 Lexington av
Henry Goldthwaite, Fifth Av. Hotel
D. H. Goodwillie, 154 W. 34th st
Bernard Gordon, 109 Henry st
John D. Gorman, 140 E. 72d st
William S. Gottheil, "The Rockland," 25 W. 53d st
David Bartlett Gould, 139 Hester st
Sidney S. Graber, 174 E. 71st st
Egbert H. Crandin, 36 E. 58th st
Reed B. Granger, 3 Bond st
Frederic H. Grant, 257 W. 52d st
Gabriel Grant, 22 E. 49th st
Joseph F. Gray, 326 W. 31st st
Landon Carter Gray, 6 E. 49th st
Rollin B. Gray, 108 W. 103d st
Soloman Greenbaum, 183 Stanton st
Robert Holmes Greene, 105 W. 71 st
Wm. Fisher Grier, 425 Lexington av
E. Harrison Griffin, 112 W. 45th st
Henry Arthur Griffin, 44 W. 48th st
Andrew von Grimm, 98 2d av
Henry Griswold, 42 W. 35th st
Emil Gruening, 109 E. 23d st.
Arago J. Guck, 236 E. 31st st
Charles F. Guillou, 26 E. 11th st
Ramon Guiteras, 79 W. 54th st
Herman F. Guelke, 106 W. 38th st
J. H. Gunning, 36 E. 65th st
Edward Gutmann, 131 E. 76th st
W. Fred. Gutman, 44 W. 126th st
Frederick Gwyer, 332 Lexington av
Charles Alex. Habersack, 832 E. 161st st
John Habirshaw, 250 W. 57th st
Charles E. Hackley, 144 W. 44th st
Alexander Hadden, 155 E. 51st st
Edwards Hall, 17 E. 66th st
William H. Hall, 129 E. 54th st
Luther Reeve Hallock, 155 W. 129th st
Silas F. Hallock, 136 E. 39th st
Frank Spencer Halsey, 123 W. 69th st
F. Halves, 104 E. 81st st
Allen McL. Hamilton, 20 E. 29th st
Graeme M. Hammond, 58 W. 45th st
Irwin H. Hance, 441 Park ave
Horace Tracy Hanks, 766 Madison av
Daniel B. Hardenbergh, 52 W. 35th st
Thomas J. Harris, 123 E. 36th st
George Tucker Harrison, 221 W. 23d street
Jacob Hartmann, 254 W. 37th st
William Hassloch, 932 2d av
Louis Haupt, 63 Rivington st
Foster S. Haven, 143 W. 61st st
Walker A. Hawes, 745 Lexington av
Harry W. Hawlik, 104 St. Mark's pl
James R. Hayden, 107 W. 55th st
Irving S. Haynes, 131 E. 86th st
Wilfard Avery Heacock, 139 W. 85th street
Joseph S. Healy, Kingsbridge
Jesse W. Hedden, 147 E. 21st st
Henry Heiman, 220 E. 116th st
Henry N. Heineman, 3 E. 14th st
Charles Heitzman, 39 W. 45th st
Louis Heitzmann, 110 E. 58th st
Herman Hellenstein, 710 E. 5th st
J. Julio Henna, 8 W. 40th st
Mary E. Hennessy, 17 E. 31st st
Henry Herman, 627 Lexington av
Everett Herrick, 126 Madison av
Emil Heuel, 352 Willis av & 142d st
Franz Heuel, Jr., 26 Irving pl
Henry R. Heydecker, Hotel San Remo, Central Park
George Heywood, 143 W. 34th st
George B. Hickok, 167 W. 78th st
Thomas John Hillis, 51 Charlton st
Alfred K. Hills, 669 5th av
Arthur T. Hills, 129 W. 81st st
Gardner Hirons, 152 W. 49th st
Charles Hitchcock, 57 W. 36th st
H. M. Hitchcock, 38 Park Row
Urban G. Hitchcock, 51 W. 29th st
Pierce C. Hoag, 107 E. 72d st
Angier Bailey Hobbs, 66 W. 38th st
Emanuel Hochheimer, 224 E. 72d st
Abbott Hodgman, 141 E. 38th st
Emil W. Hoeber, 612 Lexington av
Charles Hoffman, 243 E. 86th st

James K. Hogan, 140 Henry st
William Frederic Holcombe, 54 E. 25th st
T. N Holden, 294 East Broadway
Ward A. Holden, 26 W. 40th st
Thomas H. Holgate, 206 W. 14th st
George W. Holmes, 1491 Broadway
John F. Holmes, 844 E. 165th st
Martha C. Holmes, 75 W. 126th st
Edgar S. Holt, 133 W. 63d st
L. Emmett Holt, 15 E. 54th st
Oscar P. Honegger, 171 E. 71st st
Franklin P. Hoover, 154 W. 34th st
George B. Hope, 34 W. 51st st
Fred E. Hopkins, 226 E. 15th st
J. Louis Hopkins, 233 W. 54th st
J. Swinburne Hopkins, 150 W. 11th st
John Horn, 147 E. Broadway
Richard N. W. K. Horner, 104 W. 84th st
Lucius W. Hotchkiss, 49 W. 50th st
H. Seymour Houghton, 301 W. 88th st
Samuel T. Hubbard, 27 W. 9th st
William N. Hubbard, 7 E. 41st st
Marvin D. Hubbell, 108 E. 36th st
Francis Huber, 113 E. Broadway
Joseph Huber, 113 E. Broadway
John H. Huddleston, 25 W. 66th st
Walter G. Hudson, 73 W. 131st st
Henry G. Hughes, 151 E. 51st st
Joseph J. Hull, 64 W. 35th st
Frederic T. Hume, 82 E. 79th st
William A. Hume, 82 E. 79th st
George H. Humphreys 23 E. 47th st
Alexander S. Hunter, 32 E. 29th st
Dwight W. Hunter, 233 Madison av
Abel Huntington, 346 Broadway
Francis Hustace, 413 Madison av
Morison T. Hutchinson, 44 W. 49th st
Frederick E. Hyde, 20 W. 53d st
Henry Illoway, 1138 Madison av
John Arthur Irwin, 14 W. 29th st
Charles Warren Jackson, 168 W. 81st street
Frank W. Jackson, 12 W. 18th st
George Thomas Jackson, 14 E. 31st st
Moses Jose Jackson, 125 E. 84th st
Victor Hugo Jackson, 240 Lenox av
Abraham Jacobi, 110 W. 34th st
Mary Putnam Jacobi, 110 W. 34th st
Wm. Jacobsohn, 152 E. 86th st
Arthur M. Jacobus, 126 W. 48th st
George W. Jacoby, 663 Madison av
Archer Ward Jagger, Leb. Hospital, Westchester av
Edward G. Janeway, 36 W. 40th st
Thomas T. Janeway, 26 W. 17th st
John P. Janinski, 227 E. 58th st
Joseph E. Janvrin, 191 Madison av
William C. Jarvis, 142 Madison av
John C. Jay, 54 W. 47th st
Alex. McL. Jeffrey, 151 E. 39th st
David D. Jennings, 333 E. 20th st
Chas. Taylor Jewett, 162 W. 22d st
Wm. Henry Johnson, 119 W. 26th st
George W. Johnston, 1667 2d av
James C. Johnston, 103 W. 77th st
James H. Joliffe, 105 W. 86th st
Charles Dixon Jones, 106 W. 128th st
S. Beach Jones, 28 W. 32d st
Israel C. Jones, Fordham, 182d st & 3d av
S. Seabury Jones, 20 E. 63d st
Adoniram B. Judson, 25 Madison av
Kenneth F. Junor, 160 W. 29th st
Moses S. Kakles, 243 E. 49th st
Richard Kalish, 50 W. 39th st
Fred Kammerer, 667 Madison av
Adolph Kantrovitz, 120 Rivington st
W. H. Katenbach, 22 W. 45th st
Meyer Katzenberg, 134 E. 82d st
Guido Katzenmayer, 625 Lexington av
Thaddeus J. Keane
T. J. Kearney, 126 E. 29th st
Henry J. Kelly, 267 Lexington av
James E. Kelly, 16 E. 29th st
Charles B. Kelsey, 25 Madison av
J. T. Kemp, 225 E. 72d st
Francis S. Kennedy, 15 W. 73d st
John M. Kennedy, 163 W. 97th st
John T. Kennedy, 107 E. 29th st
Geo. W. Kerr, 77 W. 50th st
Adolph Kessler, 644 Lexington av
Theodore Keune, 230 E. 119th st
Edward L. Keyes, 109 E. 34th st
Louis F. Kiefer, 441 W. 57th st
Eleanor B. Kilham, 3 Livingston Pl
Otto G. T. Kiliani, 133 E. 57th st
Reuel B. Kimball, 24 E. 41st st
Charles A. Kinch, 285 W. 70th st
David F. King, 651 Lexington av
Ferdinand King, 315 W. 58th st
J. Eugene Kinny, 640 Madison av
Francis P. Kinnicutt, 42 W. 37th st
Isaac L. Kip, 448 5th av
Gustav A. Kletsch, 34 E. 60th st
Hermann G. Klotz, 42 E. 22d st
Herman Knapp, 26 W. 40th st
John B. Knapp, 62 W. 51st st
Charles H. Knight, 20 W. 31st st
George Knipe, 354 W. 24th st
Rollins Henry Knowles, 110 W. 129th st
August Koehler, 215 E. 19th st
R. A. Koempel, 299 Broome st
Henry F. Koester, 233 E. 85th st
Carl Koller, 32 E. 60th st
Henry Mark Koles, 1402 Lexington av
Henry Koplik, 175 E. 70th st
Frederic de Kraft, 242 W. 42d st
George W. Kram, 310 E. Broadway
Carl F. Kremer, 112 E. 57th st
Henry Krollpfeiffer, 48 St. Mark's Pl
Florian Krug, 13 E. 41st st

Herman F. Kudlich, 56 W. 17th st
Ferreol T. Labadie, Central Park W. & 97th st
Jedediah Ladd, 232 E. 23d st
Louis J. Ladinski, 243 E. Broadway
Edward W. Lambert, 2 E. 37th st
Walter Eyre Lambert, 30 W. 33d st
Max Landesmann, 732 5th st
Samuel M. Landsman, 64 E. 3d st
Fred Lange, 130 E. 61st st
Gustav Langmann, 121 W. 57th st
Boleslaw Lapowski, 122 E. 59th st
James R. Latham, 126 W. 11th st
James Law, 64 E. 122d st
Charles A. Leale, 604 Madison av
Wm. G. Le Boutillier, 49 W. 50th st
M. D. Lederman, 1029 Park av
Egbert Le Fevre, 161 W. 23d st
George M. Lefferts, 6 W. 33d st
Bartholomeus Lefkowics, 9 Clinton st
Ellen C. Leggett, 303 E. 18th st
Carl H. Lellman, 71 E. 55th st
S. Newton Leo, 103 W. 55th st
Alex Marcy Leon, 81 E. 56th st
George William Leonard, "The Del Monte," 102 W. 75th st
Z. L. Leonard, 326 E. 116th st
A. Mona Lesser, 713 Lexington av
William M. Leszynsky, 61 E. 75th st
John Leuchs, 628 E. 145th st
Allen Levings, 1700 Broadway
Frederick J. Leviseur, "Hoffman Arms," 640 Madison av
Maurice J. Lewi, 78 W. 82d st
David Clar. Lewinthal, 164 Henry st
Daniel Lewis, 249 Madison av
Amos C. Louis, Fordham Heights
Charles Henry Lewis, 18 W. 61st st
Frank N. Lewis, 127 Madison av
Albert Henry Leyton, The "Rutland," 256 W. 57th st
Alex. F. Liautard, 62 W. 85th st
Chas. Liebenau, 1143 Washington av
J. Monroe Liebermann, 309 E. 4th st
Edward Nicholas Liell, 203 W. 78th st
Howard Lilienthal, 43 E. 29th st
Rufus P. Lincoln, 22 W. 31st st
B. Abbott Lindsey, 136 W. 44th st
Frieda E. Lippert, 208 E. 17th st
William M. Lively, 223 W. 30th st
Frank Livermore, 309 Mulberry st
Samuel Loyd, 24 W. 50th st
Charles E. Locke, 245 W. 11th st
Charles E. Lockwood, 59 W. 35th st
George Roe Lockwood, 30 E. 35th st
Hugo J. Loebinger, 170 E. 75th st
Lawson A. Long, 44 W. 28th st
Alfred L. Loomis, 19 W. 34th st
H. P. Loomis, 58 E. 34th st
Edward J. Lorenze, 1644 Lexington av.
Edward Lowenbein, 637 E. 6th st
Herman Lowenthal, 127 E. 84th st
James M. Ludden, 270 W. 123d st
Joseph Edward Lumbard, 1975 7th avenue
Thurston G. Lusk, 243 E. 34th st
William T. Lusk, 47 E. 34th st
Sigmund Lustgarten, 15 E. 62d st
Alexander Lyle, 117 E. 81st st
James Walter Lyman, 424 W. 34th st
P. J. Lynch, 216 E. 13th st
George S. Lynde, 636 Lexington av
Jonathan F. Lyon, 231 E. 116th st
Samuel K. Lyon, 312 2d av
D. Stanley Lyons, 223 E. 30th st
Frederick A. Lyons, 340 Lexington avenue
J. Milton Mabbot, 19 5th av
Richard K. Macalester, 79 W. 54th st
Charles McBurney, 28 W. 37th st
Samuel McCallum, 17 Stuyvesant st
Henry B. McCarroll, 18 W. 61st st
E. S. McClellan, 245 9th av
Peter J. McCourt, 233 W. 23d st
William McCracken, 305 E. 18th st
John A. McCreery, 350 Lexington av
John McCroskery, 319 W. 116th st
Dennis J. McDonald, 207 E. 43d st
William M. H. McEnroe, 17 E. 12th street
George D. McGauran, 416 W. 51st st
Timothy McGillicuddy, 776 Madison avenue
E. L. H. McGinnis, 60 W. 38th st
J. P. McGowan, 137 E. 28th st
Augustine C. McGuire, 306 W. 86th st
Frank A. McGuire, 631 Lexington av
B. C. McIntyre, 221 W. 4th st
William McKay, 40 E. 10th st
James F. McKernon 359 W. 47th st
Wm. D. McKim, 751 Madison av
A. M. McLaurie, 234 2d av
Wm. M. McLaury, 224 W. 42d st
Wm. P. McLaury, 47 W. 130th st
Malcolm McLean, 29 E. 126th st
J. A. McLochlin, 157 W. 21st st
John B. McMahon, 266 E. Broadway
N. G. McMaster, 322 E. 15th st
J. G. McNutt, 265 Lexington av
S. J. McNutt, 265 Lexington av
Daniel E. McSweeney, 129 E. 29th st
A. E. Macdonald, 66 3d av
Belle J. Macdonald, 25 Union pl., Woodhaven Junc., L. I.
Carlos F Macdonald, "The Cambridge," 334 5th av
H. J. Macdonald, 25 Union pl., Woodhaven Junc., L. I.
E. Macfarlan, 314 W. 126th st
Ferdinard S. Machale, 218 E. 87th st
D. H. Mackie, 224 W. 35th st
Wm. Austin Macy, Ward's Island
David Magie, 32 W. 48th st
J. J. E. Maher, 213 W. 23d st

Otto Maier, 321 E. 18th st
Charles O. Maisch, 90 Madison av
Nicolaus Martin Mandl, 746 5th st
Morris Manges, 941 Madison av
Edward C. Mann, 162 E. 23d st
Marcus Markiewicz, 95 Stanton st
Francis H. Markoe, 15 E. 49th st
Thomas Masters Markoe, 20 W. 30th street
Wilbur B. Marple, 29 W. 31st st
J. Martin, 437 W. 47th st
Theodore D. Martin, 528 E. 161st st
Wilbur Fisk Martin, 1976 Madison av
Siegfried Martus, 184 E. 104th st
David M. Marvin, 2099 5th av
Simon Marx, 1111 Lexington av
R. Osgood Mason, 348 W. 58th st
Sumner A. Mason, 128 W. 127th st
Charles H. May, "Hoffman Arms," Madison av and 59th st
Calvin S. May, 57th st and 7th av
Abraham Mayer, 40 E. 60th st
Emil Mayer, 238 E. 116th st
A. W. Maynard, 264 W. 42d st
E. L. Meierhof, 57 E. 64th st
Philip Meirowitz, 718 E. 6th st
Samuel J. Meltzer, 66 E. 124th st
Walter Mendelson, 159 W. 74th st
John Henry Mennen, 150 W. 22d st
William Menzies, 149 W. 85th st
Frank W. Merriam, 11 Charlton st
Edward J. Messemer, 144 2d av
Alfred Meyer, 749 Madison av
Willy Meyer, 700 Madison av
Geo. Henry Meyers, 238 E. 60th st
Leonidas L. Mial, 145 W. 12th st
Ludwig M. Michaelis, 1090 Lexington av
Robert Milbank, 154 W. 48th st
Augustus Millig, 66 2d av
E. A. Miller, 242 E. 86th st
Frank E. Miller, 121 W. 34th st
Joseph Charles Miller, 358 W. 42d st
Theo. DeClermond Miller, 102 E. 124th st
Thomas S. P. Miller, 150 W. 37th st
Jackson M. Mills, 168 E. 61st st
Charles Milne, 124 E. 45th st
John C. Minor, 10 E. 41st st
Hubbard W. Mitchell, 747 Madison avenue
Winthrop D. Mitchell, 71 E. 54 st
William F. Mittendorf, 140 Madison avenue
Charles H. Moak, 2432 2d av
Henry Moeller, 240 W. 38th st
Richard Mollenhauer, 246 E. 53d st
Nathan Molner, 56 Eldridge st
Joseph A. Monell, 236 W. 22d st
Samuel H. Monell, 665 Lexington av
Charles James Mooney, 706 Madison avenue
Henry Walton Mooney, 18 W. 129th st
William Oliver Moore, 85 Madison av
Joseph Moorhead, 310 2d av
James Moran, 352 W. 51st st
Benjamin Morjé, 181 E. 71st st
J. Lee Morrill, 67 E. 79th st
George F. Morris, 161 W. 87th st
Louis Morris, 77 Orchard st
Robert S. Morris, 146 E. 71st st
Robert T. Morris, 133 W. 34th st
Prince A. Morrow, 66 W. 40th st
William Golden Mortimer, 612 Lexington av
Bowditch Morton, 225 5th av
William James Morton, 19 E. 28th st
Alexis V. Moschcowitz, 364 W. 55th st
George J. Moser, 359 E. 10th st
Mortimer A. Moses, 123 W. 132d st
Gustave Mourraille, 74 W. 12th st
Eugene C. Mowry, 355 W. 42d st
Robert P. Mullenbach, 230 E. 10th st
Alfons Müller, 347 E. 84th st
Richard W. Müller, 122 E. 10th st
Paul F. Mundé, 20 W. 45th st
John P. Munn, 18 W. 58th st
William H. Munn, 224 W. 48th st
George E. Munroe, 43 E. 33d st
Robert A. Murray, 235 W. 23d st
Edward G. Musgrave, 2215 Fulton av
Howard G. Myers, 181 W. 75th st
Thad. Halsted Myers, 24 W. 50th st
Robert C. Myles, 25 W. 36th st
Joseph D. Nagel, 61 W. 35th st
John T. Nagel, 47 E. 21st st
Charles E. Nammack, 29 E. 24th st
Wm. H. Nammack, 11 Rutgers st
Ignatz L. Nascher, 81 7th st
Miles Henry Nash, 217 W. 43d st
George G. Needham, 218 E. 19th st
Lewis Knobe Neff, 1476 Lexington av
William B. Neftel, 16 E. 48th st
James Neil, 1712 Madison av
J. D. Nelson, 368 W. 55th st
Wolfred D. E. Nelson, Astor House
John H. Nesbitt, 208 W. 42d st
Albert W. Neufield, 111 E. 116th st
John J. Neville, 247 W. 49th st
Albert S. Newcomb, 206 W. 71st st
James E. Newcomb, 118 W. 69th st
William Newman, 515 Grand st
Albert Wm. Newfield, 111 E. 116th st
Eleanor Frost Newton, 116 E. 57th st
Robert Safford Newton, 103 E. 16th st
James E. Nichols, 4 E. 43d st
Curt E. H. Nicolai, 229 E. 119th st
Henry D. Nicoll, 51 E. 57th st
J. R. Nilsen, 9 E. 53d st
J. Douglas Nisbet, in Europe
Mark Nivison, 268 W. 42d st
John G. Noble, 222 W. 34th st
Felix Nordemann, 210 E. 60th st
Van Horne Norrie, 21 W. 37th st
Henry S. Norris, 123 W. 34th st
Wm. P. Northrup, 57 E. 79th st

Henry D. Noyes, 233 Madison av
Francis A. Nye, 2089 Lexington av
Fannie Wallach Oakey, 665 Lexington av
Hermann Obbarius, 110 2d st
M. C. O'Brien, 161 W. 122d st
Joseph O'Dwyer, 967 Lexington av
Robert Offenbach, 825 Lexington av
Simon J. O'Neil, 249 E. 86th st
Isaac Oppenheimer, 60 E. 67th st
Henry S. Oppenheimer, 49 E. 23d st
Fessenden N. Otis, 5 W. 50th st
William K. Otis, 5 W. 50th st
W. H. Oyler, 216 W. 124th st
Charles W. Packard, 447 Park av
Henry C. Paddock, Marion av, Fordham
R. C. M. Page, 31 W. 33d st.
Edmund Janes Palmer, 1342 Lexington av
Charles Inslee Pardee, 6 E. 43d st
Edward L. Pardee, 120 W. 97th st
Wm. Halleck Park, 128 W. 11th st
Angenette Parry, 10th av & 61st st
John Parsons, Kingsbridge
Ralph L. Parsons, 21 E. 44th st
Edward L. Partridge, 19 5th av
Stewart Paton, 596 Lexington av
F. N. Patterson, 126 E. 34th st
Sanders McAlister Payne, 327 Madison av
Daniel Pease, 12 W. 25th st
Edward Sprague Peck, 53 W. 50th st
Grace Peckham Murray, 25 Madison ave
James Pederson, 350 Madison av
Edward W. Peet, 20 W. 43d st
Henry T. Pierce, 272 Lenox av
Joseph F. Perkins, 3 E. 27th st
John Gardner Perry, 48 E. 34th st
George A. Peters, 45 W. 35th st
Frederick Peterson, 201 W. 54th st
H. R. Pettingill, 123 W. 39th st
Alfred G. Pfeiffer, 236 E. 53d st
Joseph Pfeiffer, 130 E. 62d st
A. M. Phelps, 40 W. 34th st
Charles Ernestus Phillips, 51 E. 120th st
Wendell C. Phillips, 350 Madison av
Henry G. Piffard, 10 W. 35th st
W. O. Plimpton, 19 W. 84th st
Albert G. Pohly, 1379 Lexington av
Harry P. Poinsett, 301 W. 12th st
William M. Polk, 7 E. 36th st
Oren Day Pomeroy, 316 Lexington av
Thomas R. Pooley, 107 Madison av
Charles T. Poore, 5 W. 30th st
Alexander B. Pope, 126 W. 45th st
W. Evelyn Porter, 30 W. 33d st
Seneca D. Powell, 12 W. 40th st
Charles A. Powers, 35 W. 35th st
Adolf Pramann, 251 E. 86th st
Isaiah F. Pray, 115 W. 34th st
Walter E. S. Preston, 105 E. 89th st
Christopher Prince, 56 W. 50th st
R. L. Pritchard, 39 W. 49th st
Wm. B. Pritchard, 353 W. 58th st
Wm. J. Pulley, 227 E. 86th st
Alfred E. M. Purdy, 304 Madison av
Harry Lavinton Purdy, 180 E. 72d st
Harry R. Purdy, 151 E. 29th st
Leopold Putzel, 13 E. 57th st
Charles E. Quimby, 44 W. 36th st
Francis J. Quinlan, 54 W. 17th st
Maximilian G. Raefle, 94 E. 10th st
Von F. Raitz, 101 W. 132d st
E. Benjamin Ramsdell, 581 Lexington av
Edwin D. Ramsdell, 158 E. 33d st
Ambrose L. Ranney, 156 Madison av
Charles C. Ransom, 152 W. 48th st
Samuel Rapp, 350 E. 50th st
David Louis Rauch, 1031 Lexington av
Godfrey W. Rautenberg, 335 E. 87th street
H. Schroeder Aimee Raymond, 230 W. 135th st
Everett M. Raynor, 182 Willis av
Adrian Y. Reid, 104 Lexington av
John J. Reid, 853 Lexington av
I. H. Reiley, 168 W. 23d st
Pyo Rengifo, 216 W. 45th st
Frederick Thomas Reyling, 210 E. 50th st
Meyer L. Rhein, 104 E. 58th st
Clarence C. Rice, 123 E. 19th st
Waldo H. Richardson, 79 Washington Pl
William Richter, 303 E. 19th st
Frank W. Ring, 101 Park av
J. H. Ripley, 605 Lexington av
Joseph Cambridge Ritter, 116 Macdougal st
William Cabell Rives, 113 E. 38th st
Jane E. Robbins, 95 Rivington st
Nathan S. Roberts, 804 Lexington av
Thomas S. Robertson, 28 E. 20th st
A. R. Robinson, 248 W. 42d st
Beverley Robinson, 37 W. 35th st
Fred C. Robinson, 221 W. 11th st
Wm. J. Robinson, 112 E. 128th st
D. Rockwella, 113 W. 34th st
Miron J. Rockwell, 1368 Lexington av
Louis A. Rodenstein, St. Nicholas av & 155th st
Traugott F. M. Roediger, 312 W. 35th st
Adolphe Gaston Roeth, 1642 av A
Oscar H. Roners, 346 Broadway
Willard H. Rogers, 225 W. 22d st
Thomas Weaver Rogers, 113 W. 115th st
DeWitt C. Romaine, 473 Hudson st
Stephen W. Roof, 223 W. 23d st
Samuel I. Roome, 53 W. 105th st

D. B. St. John Roosa, 20 E. 30th st
J. West Roosevelt, 32 E. 31st st
Achilles Rose, 215 2d av
E. Rosenberg, 784 Lexington av
Julius Rosenberg, 109 E. 71st st
Paul Joseph Rosenheim, 206 E. 46th street
Ignatz Movray Rottenberg, 280 2d st
Julius Rudich, 121 E. 60th st
Adolph Rupp, 406 W. 34th st
Ernest F. Ruppe, 162 Prince st
John F. Russell, 21 W. 11th st
William Logie Russell, 101 W. 93d st
Domingo M. Sabater, 107 E. 30th st
Gustavus A. Sabine, 8 E. 24th st
B. Sachs, 21 E. 65th st
Nicolaus H. Sachs, 205 E. Broadway
Charles W. Sanders, 53 E. 53d st
Joseph A. Sanders, 310 W. 45th st
Robert Alfred Sands, 39 E. 33d st
Luis F. Sass, 56 W. 39th st
F. Le Roy Satterlee, 8 W. 18th st
Thomas E. Satterthwaite, 17 E 44th st
R. H. Saunders, 791 Madison av
Watson Lewis Savage, 308 W. 58th st
Eugene C. Savidge, 28 W. 59th st
Lewis A. Sayre, 285 5th av
A. Schapringer, 165 E. 60th st
Barnim Scharlau, 66 W. 35th st
Julius Scheider, 187 E. 64th st
John Wm. Schelpert, 64 W. 96th st
Philip Scheu, 440 E. 16th st
George Schlereth, 56 St. Mark's Pl
Mathilda M. Schlereth, 56 St. Mark's Place
Joseph Schmitz, 33 Delancey st
Charles P. R. Schoenemann, 324 Lexington av
George Schoeps, 1383 Lexington av
Warren Schoonover, 115 E. 59th st
Charles Schram, 136 E. 82d st
Henry H. Schroeder, 230 W. 135th st
Edward F. Schwedler, 29 E. 77th st
Richard J. Scofield, 347 W. 14th st
George Scott, 102 W. 75th st cor. Columbus av
Louis L. Seaman, 18 W. 31st st
Richard S. Seaman, 61 W. 71st st
William S. Seamans, 16 W. 52d st
Henry Thatcher Sears, 1 Williams st
Gustav Seeligman, 640 Madison av
Edward C. Seguin, 47 W. 50th st
August Seibert, 137 E. 19th st
Frederick S. Sellew, 61 E. 79th st
Isaac M. Seltzer, 270 W. 39th st
W. M. Seward, 126 E. 86th st
Walter D. Sewell, 320 Lexington av
Samuel Sexton, 12 W. 35th st
Newton M. Shaffer, 28 E. 38th st
William Shannon, 212 2d av
Frank E. E. Shaw, 225 W. 138th st
George F. Shrady, 8 E. 66th st
Reuben C. Shultz, 109 E. 54th st
H. M. Silver, 39 7th st
Lewis M. Silver, 103 W. 72d st
Chas. E. Simmons, 741 Lexington av
William Kelly Simpson, 952 Lexington av
Joseph Simrock, 110 E. 25th st
H. Marion Sims, 30 W. 58th st
Winslow W. Skinner, 170 W. 64th st
A. Alexander Smith, 40 W. 47th st
Andrew Heermance Smith, 22 E. 42d st
Charles Smith, 366 Broom st
Franklin Smith, 366 Broom st
Gouverneur M. Smith, 14 E. 17th st
Judson C. Smith, 321 E. 19th st
J. Gardner Smith, "The Beverly," 307 Lenox av
Samuel Wesley Smith, 24 W. 30th st
Frederick E. Sondern, 38 W. 38th st
Thos. S. Southworth, 19 W. 46th st
George A. Spalding, 248 Lenox av
James H. Spann, 434 5th av
Louis Spannhake, 244 E. 13th st
Dwight S. Spelman, Ward's Island
Arnot Spence, 70 W. 71st st
Daniel B. Spence, 350 W. 115th st
E. C. Spitzka, 712 Lexington av
Homer B. Sprague, 1383 Lexington av
Wm. Philip Spratling, 70 W. 88th st
Henry S. Stark, 270 E. 7th st
Moses Allen Starr, 22 W. 48th st
Henry S. Stearns, 21 E. 44th st
Ch. F. Steiger, 110 7th st
Alexander W. Stein, 30 W. 15th st
Richard Stein, 811 Lexington av
Sydney A. Stein, 158 E. 72d st
Kate L. S. Sterling, 142 W. 48th st
Fred A. Sternberg, 1269 Lexington av
Lassar Stern, 105 E. 89th st
John A. Steurer, 78 W. 47th st
William Stevens, 133 W. 41st st
George T. Stevens, 33 W. 33d st
Henry Alex. Stewart, 207 W. 22d st
George C. Stiebling, 71 St. Mark's pl
Charles W. Stimson, 134 W. 70th st
Daniel M. Stimson, 11 W. 17th st
L. A. Stimson, 34 E. 33d st
G. Mozart Stoeckel, 361 W. 42d st
William F. Stone, 114 E. 18th st
William L. Stowell, 28 W. 36th st
A. Russell Strachan, 25 E. 30th st
Ludwig Straus, 211 E. 13th st
Rosa Welt Straus, 298 Manhattan av
J. Watson Stronach, 265 W. 52d st
Frederic Russell Sturgis, 16 W. 32d st
Arnold Sturmdorf, 245 E. 13th st
Fremont Swain, 148 W. 49th st
Albert T. Swan, 317 E. 18th st
John H. Swasey, 34 E. 28th st
Edwin E. Swift, "Hotel Endicott," 81st st and Columbus av

George Montague Swift, 29 E. 31st st
William J. Swift, 40 E. 30th st
George Knowles Swinburne, 166 W. 55th st
R. E. Swinburne, 128 W. 126th st
Robert Bancker Talbot, 64 W. 50th st
George W. Talson, 46 7th av
William A. Taltavall, 2137 7th av
J. Oscroft Tansley, 28 W. 43d st
C. Fayette Taylor, 201 W. 54th st
Henry Ling Taylor, 201 W. 54th st
Robert W. Taylor, 40 W. 21st st
Stanley D. Terry, 14 W. 34th st
Jacob Teschner, 134 E. 61st st
Robert H. Theyson, 59 St. Mark's pl
Allen M. Thomas, 64 W. 50th st
Theodore Gaillard Thomas, 600 Madison ave
Edward W. Thompson, 302 E. Broadway
George S. Thompson, 239 W. 69th st
von Beverhout Thompson, 111 W. 43d st
W. Gilman Thompson, 49 E. 30th st
William H. Thomson, 7 W. 56th st
Wm. J. Tierney, 212 E. 109th st
Edward C. Titus, 248 W. 11th st
Max Toeplitz, 123 E. 62d st
Byron V. Tompkins, 26 W. 61st st
J. A. Tonner, 58 E. 25th st
Franz J. A. Torek, 164 E. 79th st
Sinclair Tousey, 29 W. 38th st
Wisner R. Townsend, 28 W. 59th st
E. Clark Tracy, 38 E. 126th st
Samuel G. Tracy, 25 W. 55th st
Henry Savary Trigg, 106 W. 126th st
Henry Tuck, 346 Broadway
C. P. Tucker, 43 W. 26th st
Ervin A. Tucker, Sloane Maternity Hospital
Edward G. Tuffs, 30 Oliver st
Theodore K. Tuthill, 319 W. 18th st
Marcus E. Tully, 50 E. 30th st
George Montgomery Tuttle, 49 W. 38th st
James P. Tuttle, 35 W. 45th st
Hoel L. Tyler, Insane Asylum, B. I.
Sigmund Tynberg, 321 E. 42d st
Henry H. Tyson, Jr., 47 W. 51st st
Sophia F. Unger, 241 W. 43d st
Ferd. C. Valentine, "The Winchester," 1244 Broadway
William A. Valentine, 45 W. 35th st
Francis Valk, 163 E. 37th st
William W. Van Arsdale, 207 W. 56th st
George M. Vandegrift, 277 Henry st
Horace Clark Vandenberg, 356 Lexington av
S. O. Van Der Poel, 47 E. 25th st
John Van Der Poel, 36 W. 39th st
Waldron B. Vanderpoel, 106 E. 24th st
Clintor DeWitt Van Dyck, "The Sherman," 66 W. 95th st
Frank Van Fleet, 49 E. 23d st
Richard Van Santvoord, 106 W. 122d st
W. W. Van Valzah, 10 E. 43d st
Charles Van Wert, 115 W. 97th st
Bernard E. Vaughn, 209 W. 55th st
Maus R. Vedder, 690 Madison av
H. N. Vineberg, 127 E. 61st st
Albert Volkenberg, 64 Rivington st
Andrew Von Grimm, 31 1st st
C. A. Von Ramdohr, 45 Irving place
Benj. F. Vosburgh, 40 W. 88th st
Henry John Wackerbath, 96 2d av
Clinton Wagner, 65 W. 38th st
Edward Waitzfelder, 105 E. 55th st
Ralph Waldo, 72 W. 45th st
Louis Waldstein, 450 Madison av
Henry F. Walker, 8 E. 30th st
John B. Walker, 33 E. 33d st
Leroy Pope Walker, 25 E. 24th st
Samuel Spencer Wallian, Washington Heights, Ft. Washington av
S. J. Walsh, 25 E. 128th st
Josephine Walter, 101 W. 75th st
Luis P. Walton, 35 W. 35th st
Edwin F. Ward, 29 W. 36th st
James E. Ward, 59 W. 62d st
O. J. Ward, 164 W. 94th st
Whitfield Ward, 128 E. 36th st
Geo. T. Warford, 132 W. 82d st
Frederic M. Warner, 66 W. 56th st
John W. Warner, 107 E. 72d st
John Warren, 47 E. 30th st
John S. Warren, 150 W. 48th st
M. Claudius Warsaw, 255 W. 52d st
John W. Warth, 253 Broome st
Wickes Washburn, 109 E. 18th st
Sigismund Waterman, 131 E. 59th st
Robert L. Watkins, 320 W. 145th st
William S. Watson, 105 W. 47th st
Robert Watts, 45 W. 36th st
Leonard Weber, 25 W. 46th st
David Webster, 327 Madison av
Edgar T. Weed, 246 Lenox av
John E. Weeks, 154 Madison av
Robert F. Weir, 37 W. 33d st
Ludwig Weiss, 77 E. 91st st
Faneuil D. Weisse, 46 W. 20th st
Brooks H. Wells, 71 W. 45th st
Charles Stuart Welles, 42 W. 26th st
Walter S. Wells, 212 W. 34th st
Sara Welt, 232 E. 58th st
Edmund C. Wendt, 712 Madison av
N. S. Wescott, 156 W. 12th st
Albert Theodore Weston, 226 C. P. W.
William H. Weston, 400 W. 22d st
Geo. T. Wetmore, 252 W. 53d st
Geo. D. Wheat, 47 E. 59th st
Claude La Mont Wheeler, 251 W. 52d street
John H. Wheeler, 319 W. 54th st

George G. Wheelock, 75 Park av
Wm. E. Wheelock, 26 E. 68th st
Charles Bell White, 107 W. 72d st
Granville Moss White, 272 W. 77th st
John Blake White, 1013 Madison av
Octavius A. White, 1011 Madison av
Henry Whitehouse, 4 E. 37th st
Fred Whiting, 52 E. 31st st
Royal Whitman, 126 W. 59th st
John F. Whitmyer, 136 W. 12th st
Joseph Wiener, 1046 5th av
Richard G. Wiener, 48 E. 65th st
Daniel H. Wiesner, 145 E. 46th st
Fred H. Wiggin, 55 W. 36th st
Reynold W. Wilcox, 706 Madison av
Henry Smith Williams, 66 W. 84th st
Mark H. Williams, 227 W. 135th st
Gustavus S. Winston, 42 W. 39th st
Joseph E. Winters, 36 W. 32d st
Lazare Wischnewetzky, 246 5th av
Rudolph A. Witthaus, 118 W. 55th st
Justin Wolfarth, 121 E. 128th st
Benjamin Wood, Jr., 846 E. 165th st
Halsey L. Wood, 349 Lenox av
William B. Wood, 22 E. 41st st
John Woodman, 123 E. 25th st
George Woolsey, 117 E. 36th st
Willard P. Worster, 120 W. 49th st
J. Warren Worcester, 141 W. 34th st
J. Williston Wright, 143 W. 81st st
Solomon Wrubel, 173 E. 105th st
Peter B. Wycock, 23 W. 57th st
Robert H. Wylie, 215 W. 43d st
Gerardus H. Wynkoop, 128 Madison av
W. Gill Wylie, 28 W. 40th st
Leroy Milton Yale, 432 Madison av
Charles E. Young, 244 W. 56th st., resigned
J. V. D. Young, 108 W. 75th st
Adolph Zederbaum, 170 E. 109th st
Adolph Zeh, 343 W. 50th st
A. P. Zemansky, 340 W. 46th st
Vincent Zolnowski, 33 W. 16th st

Number of Members, 1265.

Deceased: James Mitchels, Feb. 19, 1894, æt. 82; Charles Slover Allen; Walter Vought, Sept. 24, 1893, æt. 31; Oscar G. Harrison, Wm. H. Jackson, Celeste A. Loring, Michael J. B. Messenger, Henry B. Millard, Albert C. Stannard, Ransel M. Streeter, Henry Cooper Cooper.

THE NEW YORK ACADEMY OF MEDICINE

[Instituted January 6, 1847. Incorporated June 23, 1851.]

MEETINGS.— Stated, first and third Thursday in every month, from the first Thursday in October to the first Thursday in June, inclusive, at 8 P. M., at 17 West Forty-third street, New York; nomination of officers, first Thursday in December; election, first Thursday in January. Library open free to the public, from 10 A. M. to 6 P. M., to members, 10 A. M. to 10 P. M.; in summer, 10 A. M. to 6 P. M. Physicians in active practice for the three years preceding application, and residents of the State of New York are eligible for Resident Fellowship. Surgeons in the U. S. Army, Navy, or Marine-Hospital Service, and physicians residing in other States, are eligible for Non-resident Fellowship.

Officers. (January, 1894.)

D. B. St. John Roosa, *President.*
Charles McBurney, L. A. Stimson, J. D. Bryant, *Vice-Presidents.*
Richard Kalish, *Recording Secretary.*
M. Allen Starr, *Corresponding Secretary.*
Orlando B. Douglas, *Treasurer.*
Adoniram B. Judson, *Statistical Secretary.*
Reginald H. Sayre, *Assistant Secretary.*

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Egbert H. Grandin, *Executive Librarian.*

Mr. John S. Brownne, *Resident Librarian.*

Delegates to State Medical Society:

Henry D. Chapin, Hobart Cheesman, Henry C. Coe, Wm. A. Ewing, J. D. Bryant.

Resident Fellows. (June, 1894.)

(Where no town is mentioned New York City is to be understood.)

Robert Abbe, 11 W. 50th st
Frank Abbott, 22 W. 40th st
Alpheus E. Adams, Newburgh, N. Y.
Calvin T. Adams, 13 W. 33d st
Isaac Adler, 12 E. 60th st
David H. Agan, 363 Broome st
Enrique V. Agramonte, 267 W. 45th st
Samuel Alexander, 5 W. 58th st
W. T. Alexander, 940 St. Nicholic av
L. A. W. Alleman, 64 Montague st, Brooklyn, N. Y.
Charles W. Allen, 696 Madison av
Thomas H. Allen, 52 W. 45th st
Henry Altshul, 153 W. 76th st
Jas. H. Anderson, 30 University pl
Wm. B. Anderton, 34 W. 47th st
Joseph A. Andrews, 9 W. 22d st
Lewis Arcularius, 121 E. 25th st
Samuel T. Armstrong, 166 W. 54th st
Moses Aronson, 536 5th st
Jacob H. Asch, 770 Lexington st
Morris J. Asch, 5 W. 30th st
August Assenheimer, 323 E. 51st st
Edward A. Ayers, 151 E. 34th st
Gorham Bacon, 63 W. 54th st
Thomas S. Bahan, 257 W. 14th st
Pearce Bailey, 50 E. 31st st
A. Brayton Ball, 42 W. 36th st
Henry Balser, 606 E. 9th st
Wm. Balser, 218 E. 13th st
Wm. L. Baner, 38 W. 40th st
L. Bolton Bangs, 31 E. 44th st
Elbert A. Banks, 70 W. 35th st
Justin L. Barnes, 5 E. 41st st
Charles C. Barrows, 7 E. 36th st
Josiah W. Barstow, Sanford Hall, Flushing, N. Y.
John L. Barton, 57 E. 55th st
Simon Baruch, 51 W. 70th st
Frederick M. Bauer, 225 E. 86th st
George Bayles, Orange, N. J.
Carl Beck, 37 E. 31st st
Christopher M. Bell, 320 5th av
Albert C. Benedict, 95 N. Broadway, Yonkers, N. Y.
T. Passmore Berens, 4 E. 43d st
Henry W. Berg, 245 7th st
Edw. J. Bermingham, 23 E. 46th st
Hermann M. Biggs, 5 W. 58th st
John H. Billings, 249 Madison av
C. E. Billington, 85 Madison av
Louis F. Bishop, 36 W 35th st
Joseph B. Bissell, 37 W. 50th st
Mark Blumenthal, 987 Madison av
Edward A. Bogue, 63 W. 48th st
Hermann J. Boldt, 54 W. 51st st
J. Arthur Booth, 419 Madison av
Rudolph O. Born, 163 W. 34th st
Francke H. Bosworth, 26 W. 46th st
Frank A. Bottome, 134 W. 126th st
Fred. J. Bowles, 154 W. 93d st
Nathan Bozeman, 9 W. 31st st
Edward Bradley, 19 W. 30th st
Elizabeth N. Bradley, 132 W. 58th st
Laban B. Bradshaw, 41 E. 72d st
John W. Brannan, 54 W. 11th st
James A. Breakell, 249 W. 52d st
George E. Brewer, 48 E. 31st st
Wm. J. Brickelmaier, 41 W. 49th st
Charles K. Briddon, 13 E. 33d st
Nathan E. Brill, 805 Lexington av
E. L. Macomb Bristol, 25 E. 30th st
Frederick J. Brockway, 105 W. 74th st
William P. Brodrick, 164 W. 121st st
Edward B. Bronson, 123 W. 34th st
G. Frederick Brooks, 38 W. 32d st
Abram Brothers, 162 Madison st
Le Roy Broun, 1 W. 81st st
Charles H. Brown, 25 W. 45th st
Dillon Brown, 40 E. 57th st
F. Tilden Brown, 40 E. 31st st
Chas. E. Bruce, 456 Lexington av
Albert F. Brugman, 588 E. 141st st
Edward F. Brush, Mt. Vernon, N. Y.
Joseph D. Bryant, 54 W. 36th st
A. H. Buckmaster, 52 E. 31st st
L. Duncan Bulkley, 4 E. 37th st
Charles S. Bull, 47 W. 36th st
Wm. T. Bull, 35 W. 35th st
Wm. E. Bullard, 112 E. 40th st
Wm. M. Bullard, 302 Madison av
T. Hamilton Burch, 41 W. 34th st
Thomas H. Burchard, 7 E. 48th st

Martin Burke, 147 Lexington av
Wm. J. Burnett, Long Island City
Frederick A. Burrall, 48 W. 17th st
Charles H. Bushong, 59 W 19th st
Glenworth Recor Butler, 229 Gates av, Brooklyn
H. Hoyle Butts, 313 Madison av
Stephen S. Burt, 37 W. 32d st
John Byrne, 314 Clinton st, Brooklyn
John M. Byron, 222 E. 15th st
Caroline A. Cabot, 168 W. 48th st
John Cabot, 168 W. 48th st
Augustus Caillé, 185 2d av
Peter A. Callan, 35 W. 38th st
Edward M Cameron, 22 W. 47th st
Donald M. Cammann, 19 E. 33d st
Archibald M. Campbell, Mt Vernon
John L. Campbell, 259 W. 42d st
Wm. C. Campbell, 259 W. 42d st
George F. Carey, 142 E. 19th st
Stuart B. Carlisle, Mt. Vernon
Albro R. Carman, 27 W. 127th st
Elon N. Carpenter, 138 Madison av
Walter L. Carr, 8 E. 58th st
Joseph S. Carreau, 18 W. 21st st
De Lancey Carter, 114 E. 85th st
Frederick A. Castle, 55 E. 52d st
Charles M. Cauldwell, 75 W. 55th st
Edwin R. Chadbourne, 31 W. 25th st
Porter F. Chambers, 26 W. 47th st
Charles F. Chandler, 41 E. 49th st
Frank W. Chapin, 122 W. 58th st
Henry D. Chapin, 27 W. 51st st
Walter F. Chappell, 22 E. 42d st
Jean F. Chauveau, 31 W. 60th st
Hobart Cheesman, 328 W. 57th st
Timothy M. Cheesman, 46 E. 29th st
Wm. S. Cheesman, Auburn
John H. Claiborne, Jr., 10 E. 28th st
W. Brewster Clark, 50 E. 31st st
Margaret A. Cleaver, 68 Madison av
Clement Cleveland, 59 W. 38th st
T. W. Cleveland, 242 W. 43d st
George D. Clift, Buckingham Hotel, 5th ave and 50th st
Cornelius J. Coakley, 126 E. 45th st
Titus M. Coan, 70 5th av
Henry C. Coe, 27 E. 64th st
Lewis A. Coffin, 145 W. 12th st
Henry Coggeshall, 102 E. 57th st
Joseph Collins, 43 W. 39th st
Felix Cohn, 38 E. 60th st
Carter S. Cole, 71 West, Boulevard
Wm. B. Coley, 18 E. 32d st
Stacy B. Collins, Germantown, Philadelphia, Pa.
Herman L. Collyer, 109 E. 54th st
Frank Combes, 220 E. 112th st
George S. Conant, 148 E. 18th st
Harry B. Conrad, 102 E. 74th st
Stephen G. Cook, 111 W. 12th st
J. Leonard Corning, 53 W. 38th st
Edward O. Cowles, 629 Lexington av
Edward B. Cragin, 62 W. 50th st
Henry E. Crampton, 256 W. 121st st
Floyd M. Crandall, 113 W. 95th st
George W. Crary, 152 W. 57th st
James K. Crook, 128 Lexington av
Andrew F. Currier, 138 Madison av
Charles G. Currier, 75 W. 55th st
B. Farquhar Curtis, 307 Madison av
H. Holbrook Curtis, 118 Madison av
Elizabeth M. Cushier, 53 E. 20th st
Wm. F. Cushman, 325 W. 22d st
Condict W. Cutler, 260 W. 57th st
Alex. Dallas, 65 W. 36th st
Charles L. Dana, 50 W. 46th st
Albert A. Davis, 119 E. 62d st
R. C. Davis, 150 E. 128th st
R. H M. Dawbarn, 345 W. 56th st
Wm. B. DeGarmo, 56 W. 36th st
Francis Delafield, 12 W. 32d st
D. Bryson Delavan, 1 E. 33d st
Edward B. Dench, 17 W. 46th st
Chas. E. Denhard, 197 Edgecomb av
Frederic S. Dennis, 542 Madison av
Richard H. Derby, 9 W. 35th st
Leonard A. Dessar, 58 W. 49th st
S. Henry Dessau, 47 W. 56th st
William Detmold, 38 E. 9th st
Robert J. Devlin, 156 W. 13th st
J. Harvey Dew, 352 W. 54th st
A. Britton Deynard, 333 W. 51st st
R. L. Dickinson, 145 Clinton st, Brooklyn
R. G. L. Dieffenbach, 224 E. 48th st
F. H. Dillingham, 636 Lexington av
George A. Dixon, 15 W. 49th st
Frederick E. D'Oench, 12 E. 28th st
W. E. Dold, Boulevard and 116th st
Edwin J. Donlin, 129 West Houston st
John Dorning, 252 W. 25th st
Alvah H. Doty, 59 W. 35th st
Hy. B. Douglas, 171 W. 81st st
Orlando B. Douglas, 123 E. 36th st
Stuart Douglas, 35 W. 36th st
Chas. N. Dowd, 135 W. 73d st
Wm. H. Draper, 19 E. 47th st
Wm. K. Draper, 33 W. 39th st
A. Palmer Dudley, 640 Madison ave
E. K. Dunham, 347 Lexington ave
T. Dunham, 347 Lexington ave
Ghislani Durant, 12 W. 46th st
George M. Edebohls, 198 2d av
John H. Eben, Creston av and Fordham, N. Y
James C. Edgar, 54 E. 34th st
Paul Ehrhart, 313 W. 30th st
Max Einhorn, 107 E. 65th st
Albert Heman Ely, 19 W. 46th st
Ellsworth Elliot, 48 W. 36th st
George Elliott, 48 E. 26th st
Wm. S. Ely, Rochester, N. Y.
John H. Emerson, 81 Madison av
Bache McE. Emmet, 18 E. 30th st

Thomas A. Emmet, 93 Madison av
John F. Erdman, 141 W. 34th st
W. A. Ewing, 134 W. 58th st
Henry A. Fairbairn, 249 McDonough st, Brooklyn
Warren A. Fanning, 115 W. 63d st
J. O. Farrington, 1991 Madison av
William H Farrington, Astor House, Broadway and Vesey st
Frank Ferguson, 20 W. 38th st
Jas. F. Ferguson, 168 Lexington av
Jose M. Ferrer, P. O. box 177, N. Y. city
Albert W. Ferris, 12 E. 47th st
Matthew D. Field, 112 E. 40th st
C. G. J. Finn, Hempstead, N. Y.
Louis Fisher, 187 2d av
Edward D. Fisher, 42 W. 45th st
Arthur Lyman Fisk, 11 W. 50th st
Martin J. Fleming, 132 Lexington av
Francis Foerster, 39 W. 52d st
Willis E. Ford, Utica, N. Y.
John A. Fordyce, 66 Park av
Wm. E. Forrest, 39½ Washington sq
Frank P. Foster, 16 E. 31st st
George V. Foster, 109 E. 18th st
Edward P. Fowler, 38 W. 40th st
George B. Fowler, 56 W. 50th st
George R. Fowler, 302 Washington av, Brooklyn
George H. Fox, 18 E. 31st st
Edward Frankel, 217 E. 17th st
Gustav Frauenstein, 508 W. 57th st
George C. Freeborn, 215 W. 70th st
Rowland G. Freeman, 205 W. 57th st
Sarah A. French, 217 W. 34th st
Thomas R. French, 150 Joralemon st, Brooklyn
W. Freudenthal, 943 Madison av
Albert H. Fridenberg, 60 E. 61st st
Edward Fridenberg, 2019 5th av
Alfred Friedman, 862 Lexington av
David Froehlich, 117 E. 80th st
J. Henry Fruitnight, 161 W. 57th st
Jacob Fuhs, 286 Jefferson av, Brooklyn
Eugene Fuller, 109 E. 34th st
Robert M. Fuller, 136 W. 42d st
Stephen E. Fuller, 77 Hanson place, Brooklyn
Guido Furman, 125 W. 73d st
Anna M. Galbraith, 68 W. 50th st
A. Ernest Gallant, 35 W. 53d st
Jasper J. Garmany, 40 W. 40th st
Henry J. Garrigues, 155 Lexington av
Arpad G. Gerster, 56 E. 25th st
Virgil P. Gibney, 16 Park av
Chas. Langdon Gibson, 46 W. 33d st
William Gilfillan, 98 Remsen st, Brooklyn
W. W. Gilfillan, 275 Lexington av
Walter R. Gillette, 24 W. 40th st
Francis Ginnasi, 118 McDougall st
John H. Gordner, 31 W. 38th st
Joseph W. Gleitsman, 46 E. 25th st
Augustus H. Goelet, 351 W. 57th st
James R. Goffe, 22 E. 35th st
Herman Goldenberg, 22 E. 63d st
David H. Goodwillie, 160 W. 34th st
Orren A. Gorton, Sherburne, N. Y.
Wm. S. Gottheil, 25 W. 53d st
Egbert H. Grandin, 36 E. 58th st
Wm. D. Granger, Bronxville, N. Y.
Frank Grauer, 323 W. 46th st
Landon Carter Gray, 6 E. 49th st
Robert H. Greene, 14 W. 32d st
Wm. F. Greene, Mt. Vernon, N. Y.
Henry A. Griffin, 44 W. 48th st
Henry Griswold, 42 W. 35th st
Emil Gruening, 109 E. 23d st
Ramon Guiteras, 79 W. 54th st
Fred W. Gwyer, 332 Lexington av
John Habirshaw, 250 W. 57th st
Alexander Hadden, 155 E. 51st st
Edwards Hall, 17 E. 66th st
Wm. H. Hall, 129 E. 54th st
Silas F. Hallock, 136 E. 39th st
F. Spencer Halsey, 210 W. 69th st
Greame M. Hammond, 58 W. 45th st
Irwin H. Hance, 441 Park av
Horace T. Hanks, 766 Madison av
Thomas Jefferson Harris, 117 E. 40th st
Daniel Harrison, Whitestone, N. Y.
George T. Harrison, 221 W. 23d st
James R. Hayden, 107 W. 55th st
George D. Hays, 22 W. 120th st
Henry N. Heinemann, 3 E. 14th st
Charles Heitzman, 39 W. 45th st
Louis Heitzman, 110 E. 58th st
J. Julio Henna, 8 W. 40th st
Morris H. Henry, 581 5th av
Neil J. Hepburn, 369 W. 23d st
Edgar M. Hermance, Yonkers, N. Y.
Everett Herrick, 126 Madison av
Christian A. Herter, 839 Madison av
Emil Heuel, 352 Willis av
Franz Heuel, Jr., 26 Irving pl
George B. Hickok, 167 W. 78th st
Thomas J. Hillis, 51 Charlton st
Alfred K. Hills, 669 5th av
John H. Hinton, 41 W. 32d st
Joseph G. Hirons, 152 W. 49th st
Urban G. Hitchcock, 51 W. 26th st
Eugene Hodenpyl, 36 W 56th st
Abbott Hodgman, 141 E. 28th st
Edward J. Hogan, 308 Madison av
Thomas H. Holgate, 206 W. 14th st
L. Emmett Holt, 15 E. 54th st
Oscar P. Honegger, 171 E. 71st st
Fred. E. Hopkins, 226 E. 15th st
George G. Hopkins, 350 Washington av, Brooklyn
J. Louis Hopkins, 233 W. 54th st
J. Swinburne Hopkins, 150 W. 11th st

George W. Hosmer, Paterson, N. J.
H. Seymour Houghton, 301 W. 88th st
Robert T. Howe, Mt. Vernon, N. Y.
John T. Howell, Newburgh, N. Y.
Dwight L. Hubbard, 344 W. 33d st
Leroy W. Hubbard, 161 W. 23d st
Francis Huber, 209 E. 17th st
Joseph J. Hull, 64 W. 35th st
Wm. A. Hume, 82 E. 79th st
George H. Humphreys, 23 E. 47th st
Joseph H. Hunt, Quincy st & Bedford av, Brooklyn
Alexander S. Hunter, 32 E. 29th st
Dwight H. Hunter, 222 W. 23d st
Frederick E. Hyde, 20 W. 53d st
John A. Irwin, 14 W. 29th st
Frank L. Ives, 117 E. 30th st
Frank W. Jackson, 12 W. 18th st
George F. Jackson, 155th st and St. Nicholas av
George T. Jackson, 14 E. 31st st
Victor Hugo Jackson, 240 Lenox av
Abraham Jacobi, 110 W. 34th st
Mary Putnam Jacobi, 110 W. 34th st
Nathan Jacobson, Syracuse, N. Y.
Arthur M. Jacobus, 126 W. 48th st
George W. Jacoby, 663 Madison av
Walter B. James, 33 W. 39th st
Edward G. Janeway, 36 W. 40th st
Joseph E. Janvrin, 191 Madison av
George W. Jarman, 27 E. 64th st
Wm. C. Jarvis, 142 Madison av
Charles Jewett, 330 Clinton av, Brooklyn
James H. Jolliffe, 105 W. 86th st
Charles N. D. Jones, 106 W. 128th st
Israel C. Jones, Fordham, N. Y.
S. Seabury Jones, 809 Lexington ave
Adoniram B. Judson, 4 E. 25th st
Champion H. Judson, Dobb's Ferry
Kenneth F. Junor, 160 W. 29th st
Moses S. Kakeles, 243 E. 49th st
Richard Kalish, 50 W. 36th st
Fred. Kammerer, 667 Madison av
Wm. H. Katzenbach, 22 W. 45th st
Thomas J. Kearney, 126 E. 29th st
Theodore H. Kellogg, Willard State Hospital, Willard, N. Y.
James Edward Kelly, 16 E. 29th st
Charles B. Kelsey, 25 Madison av
Wm. M. Kemp, 267 W. 23d st
Samuel Ketch, 328 W. 29th st
Edward L. Keyes, 109 E. 34th st
Ruel B. Kimball, 20 W. 47th st
Francis P. Kinnicutt, 42 W. 37th st
John S. Kirkendall, Ithaca, N. Y.
Gustav A. Kletsch, 34 E. 60th st
Herman G. Klotz, 42 E. 22d st
Gideon L. Knapp, 42 W. 21st st
Hermann Knapp, 26 W. 40th st
John B. Knapp, 62 W. 51st st
Charles H. Knight, 20 W. 31st st
George Knipe, 353 W. 24th st
Samuel Kohn, 219 Second av
Henry Koplik, 175 E. 70th st
Carl F. Kremer, 112 E. 57th st
Henry Krollpfeiffer, 48 St. Mark's pl
Florian Krug, 13 E. 41st st
Louis J. Ladinski, 248 E. Broadway
Alexander Lambert, 2 E. 37th st
Edward W. Lambert, 2 E. 37th st
Samuel W. Lambert, 2 E. 37th st
Fred E. Lange, 130 E. 61st st
Gustav Langmann, 121 W. 57th st
James R. Latham, 131 W. 11th st
Charles A. Leale, 604 Madison av
Wm. G. LeBoutillier, 49 W. 50th st
Egbert LeFevre, 161 W. 23d st
George M. Lefferts, 6 W. 33d st
Simon N. Leo, 103 W. 55th st
George W. Leonard, 102 W. 75th st
Adolph M. Lesser, 713 Lexington av
Wm. M. Leszynsky, 61 E. 75th st
Fred J. Leviseur, 640 Madison ave
Charles H. Lewis, 18 W. 61st st
Daniel Lewis, 249 Madison av
Frank N. Lewis, 127 Madison av
Fred W. Lillienthal, 306 E. 15th st
Howard Lilienthal, 33 E. 31st st
Frieda E. Lippert, 45 W. 55th st
Rufus P. Lincoln, 22 W. 31st st
Chas. I. Lindley, 121 Madison av
Hersey G. Locke, 2 W. 43d st
Samuel Lloyd, 24 W. 50th st
A. V. B. Lockrow, 7th av and 122d st
Charles E. Lockwood, 59 W. 35th st
George R. Lockwood, 30 E. 35th st
Alfred L. Loomis, 19 W. 34th st
Henry P. Loomis, 58 E. 34th st
Wm. T. Lusk, 47 E. 34th st
Patrick J. Lynch, 216 E. 13th st
Geo. S. Lynde, 636 Lexington av
S. B. Lyon, Boulevard and 116th st
Samuel K. Lyon, 312 2d av
Charles McBurney, 28 W. 37th st
John A. McCorkle, 149 Clinton st, Brooklyn
Andrew J. McCosh, 22 E. 56th st
Peter J. McCourt, 233 W. 23d st
J. A. McCreery, 350 Lexington av
Alexander E. McDonald, City Asylum (Ward's Island)
George A. McDonald, 31 E. 67th st
Timothy J. McGillicuddy, 776 Madison av
E. L. H. McGinnis, 55 W. 33d st
Burnett C. MacIntyre, 321 W. 4th st
William McKay, 40 E. 10th st
Jas. F. McKernon, 359 W. 47th st
W. Duncan McKim, 751 Madison av
James W. McLane, 51 W. 38th st
Wm. M. McLaury, 244 W. 42d st
Malcolm McLean, 29 E. 126th st
Samuel B. W. McLeod, 247 W. 23d st
John B. McMahon, 266 E. Broadway

Nath. G. McMaster, 322 E. 15th st
George McNaughton,1 Cambridge pl, Brooklyn
Sarah J. McNutt, 265 Lexington av
J. Milton Mabbott, 19 5th av
P. A. Malleson, 2014 5th av
Henry A. Mandeville, 34 W. 40th st
Morris Manges, 941 Madison av
Thomas H. Manley, 302 W. 53d st
Francis H. Markoe, 15 E. 49th st
James W. Markoe, 20 W. 30th st
Thomas M. Markoe, 20 W. 30th st
Wilbur B. Marple, 29 W. 31st st
Simon Max, 1111 Lexington av
Lewis D. Mason, 171 Joralemon st, Brooklyn
R. Osgood Mason, 348 W. 58th st
Jansen B. Mattison, 185 Brooklyn av, Brooklyn
Charles H. May, 692 Madison av
Calvin S. May, 205 W. 57th st
Abraham Mayer, 40 E. 60th st
Emil Mayer, 238 E. 116th st
Alfred W. Maynard, 264 W. 42d st
S. J. Meltzer, 66 E. 124th st
Walter Mendelson, 159 W. 74th st
Frank W. Merriam, 11 Charlton st
Alfred Meyer, 749 Madison av
Willy Meyer, 700 Madison av
L. M. Michaelis, 1090 Lexington av
Robert Milbank, 154 W. 48th st
Charles Milne, 121 E. 45th st
John C. Minor, 10 E 41st st
Ramon L. Miranda, 349 W. 46th st
H. W. Mitchell, 747 Madison av
Wm. F. Mittendorf, 140 Madison av
Henry Moeller, 240 W. 38th st
Henry Moffat, 89 Ashburton av, Yonkers
Joseph A. Monell, 236 W. 22d st
Samuel H. Monell, 665 Lexington av
W. Oliver Moore, 83 Madison av
Benjamin Morjé, 181 E 71st st
Lewis R. Morris, 35 W. 36th st
Robert T. Morris, 49 W. 39th st
P. Albert Morrow, 66 W. 40th st
W. Golden Mortimer, 612 Lexington av
William J. Morton, 19 E. 28th st
Gustave Mourraille, 74 W. 12th st
Paul F. Mundé, 20 W. 45th st
John P. Munn, 18 W. 58th st
George E. Munroe, 43 E. 33d st
Frank W. Murray, 38 W. 36th st
Robert A. Murray, 235 W. 23d st
T. Halsted Myers, 24 W. 50th st
Robert C. Myles, 25 W. 36th st
Chas. E. Nammack, 273 Madison st
George G. Needham, 218 E. 19th st
William B. Neftel, 16 E. 48th st
Albert W. Neufield, 237 E. Broadway
James E. Newcombe, 118 W. 69th st
Albert S. Newcombe, 206 W. 71st st
Curt E. H. Nicolai, 229 E. 119th st
James A. Nichols, 133 W. 34th st
James E. Nichols, 4 E. 43d st
Truman Nichols, 267 E. Broadway
Henry D. Nichol, 51 E. 57th st
Jonas R. Nilsen, 9 E. 53d st
John G. Noble, 222 W. 34th st
Henry S. Norris, 123 W. 34th st
Wm. P. Northrup, 57 E. 79th st
Henry D. Noyes, 233 Madison av
Joseph O'Dwyer, 967 Lexington av
Robert Offenbach, 825 Lexington av
Henry S. Oppenheimer, 49 E. 23d st
Isaac Oppenheimer, 68 E. 67th st
Fessenden N. Otis, 5 W. 50th st
Wm. K. Otis, 5 W. 50th st
Charles W. Packard, 447 Park av
R. Channing M. Page, 31 W. 33d st
Charles I. Pardee, 6 E. 43d st
Roswell Park, Buffalo, N. Y.
W. H. Park, 128 W. 11th st
Willard Parker, 55 Fifth av
John Parsons, Kingsbridge, N. Y.
Ralph L. Parsons, Sing Sing, N. Y.
Stewart Paton, 596 Lexington av
Edward L. Partridge, 19 5th av
Frank N. Patterson, 126 E. 34th st
S. M. Payne, 327 Madison av
George L. Peabody, 57 W. 38th st
Daniel P. Pease, Hoffman House, Broadway and 25th st
Edward S. Peck, 53 W. 50th st
Grace Peckham Murray, 25 Madison av
Henry T. Pierce, 272 Lenox av
Joseph F. Perkins, St. James Hotel, Broadway and 26th st
James L. Perry, 79 W. 47th st
John G. Perry, 48 E. 34th st
George A. Peters, 45 W. 35th st
Frederick Peterson, 60 W. 50th st
Alfred G. Pfeiffer, 236 E. 53d st
Abel M. Phelps, 40 W. 34th st
Charles Phelps, 34 W. 37th st
Wendell C. Phillips, 250 Madison av
Henry G. Piffard, 10 W. 35th st
Burke Pillsbury, Middletown, N. Y.
Wm. M. Polk, 7 E. 36th st
Sigismund Pollitzer, 32 E. 60th st
Oren D. Pomeroy, 316 Lexington av
Thomas R. Pooley, 107 Madison av
Alexander B. Pope, 126 W. 45th st
W. Evelyn Porter, 50 W. 33d st
Wm. Henry Porter, 1674 Broadway
James Lindsay H. H. Porteous, 88 Warburton av., Yonkers, N. Y.
Seneca D. Powell, 12 W. 40th st
Charles A. Powers, 35 W. 35th st
Wm. B. Pritchard, 353 W. 58th st
Jonathan S. Prout, 26 Schermerhorn st., Brooklyn, N. Y.
T. Mitchell Prudden, 160 W. 59th st

Wm. R. Pryor, 15 Park av
Alfred E. M. Purdy, 304 Madison av
Samuel S. Purple, 36 W. 22d st
Leopold Putzel, 13 E. 57th st
John D. Quackenbos, 331 W. 28th st
Charles E. Quimby, 44 W. 36th st
Francis J. Quinlan, 54 W. 17th st
Edward Quintard, 58 W. 36th st
George W. Rachel, 325 E. 19th st
Ambrose L. Ranney, 156 Madison av
Fred M. Ranney, 317 W. 29th st
Charles C. Ransom, 152 W. 48th st
Leonard S. Rau, 72 W. 55th st
F. C. Raynor, 163 Clinton st., Brooklyn
Ira B. Read, 66 E. 126th st
John J. Reid, 853 Lexington av
Meyer L. Rhein, 104 E. 58th st
Archibald C. Rhoades, Union League Club, 5th av. & 39th st
Clarence C. Rice, 123 E. 19th st
M. R. Richard, 77 E. 116th st
Charles H. Richardson, 427 Lexington av
John E. Richardson, 127 S. Oxford st., Brooklyn
Frederick C. Riley, 38 E. 26th st
Frank W. Ring, 101 Park av
John H. Ripley, 605 Lexington av
Nathan S. Roberts, 804 Lexington av
Andrew R. Robinson, 248 W. 42d st
Beverley Robinson, 37 W. 35th st
Thomas M. Rochester, 2 St. James pl., Brooklyn
Alphonso D. Rockwell, 113 W. 34th st
L. A. Rodenstein, 908 St. Nicholas av
John O. Roe, Rochester, N. Y.
Willard H. Rogers, 225 W. 22d st
Stephen W. Roof, 223 W. 23d st
D. B. S. John Roosa, 20 E. 30th st
J. West Roosevelt, 22 E. 31st st
Achilles Rose, 215 2d av
Alvah Rowe, 349 W. 34th st
Julius Rudisch, 121 E. 60th st
Adolph Rupp, 406 W. 34th st
Gustavus A. Sabine, 8 E. 24th st
Bernard Sachs, 21 E. 65th st
Robert A. Sands, 39 E. 33d st
Louis F. Sass, 56 W. 39th st
F. Le Roy Satterlee, 8 W. 18th st
Thomas E. Satterthwaite, 17 E. 44th st
Lewis A. Sayre, 285 5th av
Reginald H. Sayre, 285 5th av
Alos Schapringer, 165 E. 60th st
Barnim Scharlau, 66 W. 35th st
John Schmitt, 125 2d av
C. P. R. Schoenemann, 324 Lexington av
Chas. Schram, 136 E. 82d st
George Scott, 102 W. 75th st
Henry H. Seabrook, 118 E. 72d st
Louis L. Seaman, 18 W. 31st st
William S. Seamans, 16 W. 52d st
Edward C. Seguin, 47 W. 50th st
August Seibert, 137 E. 19th st
Edward H. M. Sell, 12 W. 39th st
Frederick S. Sellew, 61 E. 79th st
Newton M. Schaffer, 28 E. 38th st
Samuel Sherwell, 33 Schermerhorn st, Brooklyn
George F. Shrady, 8 E. 66th st
John Shrady, 149 W. 126th st
Albert Shunk, 232 W. 22d st
Henry M. Silver, 39 7th st
Lewis Mann Silver, 103 W. 72d st
Chas. E. Simmons, 742 Lexington av
Wm. K. Simpson, 952 Lexington av
H. Marion Sims, 30 W. 58th st
Frank D. Skeel, 361 Mott av
Alexander J. C. Skene, 167 Clinton st, Brooklyn
Abram A. Smith, 40 W. 47th st
Andrew H. Smith, 22 E. 42d st
George De F. Smith, 20 E. 29th st
Gouverneur M. Smith, 14 E. 17th st
J. Lewis Smith, 64 W. 56th st
Judson C. Smith, 321 E. 19th st
Oscar G. Smith, 130 Washington pl
Stephen Smith' 574 Madison av
S. Hanbury Smith, 688 Jefferson av, Brooklyn
Samuel W. Smith, 24 W. 30th st
Frederic E. Soudern, 38 W. 38th st
T. S. Southworth, 19 W. 46th st
George A. Spalding, 248 Lenox av
Lewis H. Spanhake, 244 E. 13th st
D. B. Spence, 350 W. 115th st
James D. Spencer, Watertown, N.Y.
S. Fleet Speir, 162 Montague st, Brooklyn
M. Allen Starr, 22 W. 48th st
Henry S. Stearns, 21 E. 44th st
Thomas L. Stedman, 137 W. 78th st
Alexander W. Stein, 30 W. 15th st
Wm. Stevens, 133 W. 41st st
Douglas H. Stewart, 111 W. 64th st
Charles W. Stimson, 134 W. 70th st
Daniel M. Stimson, 11 W. 17th st
Lewis A. Stimson, 34 E. 33d st
Gustav M. Stoeckel, 361 W. 42d st
Wm. M. Stowell, 28 W. 36th st
A. Russell Strachan, 25 E. 30th st
W. Stratford, 245 W. 52d st
Francis H. Stuart, 123 Joralemon st, Brooklyn
Wm. Stubenbord, 219 W. 38th st
Frederic R. Sturgis, 16 W. 32d st
A. Walter Suiter, Herkimer, N. Y.
Fremont Swain, 120 E. 86th st
Wm. F. Swalm, 118 Lafayette av, Brooklyn
John H. Swasey, 34 E. 28th st
Edwin E. Swift, "Hotel Endicott," 81st st and Columbus av
George M. Swift, 29 E. 31st st
Samuel Swift, Yonkers, N. Y.

Wm. J. Swift, 40 E. 30th st
George K. Swinburne, 166 W. 55th st
Ralph E. Swinburne, 128 W. 126th st
Brandreth Symonds, 128 W. 59th st
Parker Syms, 60 W. 47th st
Charles F. Taylor, 201 W. 54th st
Henry L. Taylor, 201 W. 54th st
James R. Taylor, 234 E. 12th st
Robert W. Taylor, 40 W. 21st st
J. Teschner, 134 E. 61st st
John S. Thacher, 33 W. 39th st
Allen M. Thomas, 64 W. 50th st
T. Gaillard Thomas, 600 Madison av
Wm. G. Thompson, 49 E. 30th st
Wm. H. Thomson, 7 W. 56th st
Wm. Thurman, 107 W. 86th st
Franz J. A. Torek, 164 E. 79th st
Wisner R. Townsend, 28 W. 59th st
Arthur B. Townshend, 22 W. 32d st
E. Clark Tracy, 30 E. 126th st
Roger S. Tracy, 74 W. 46th st
E. L. Trudeau, Saranac Lake, N. Y.
Carlos P. Tucker, 43 W. 26th st
Erven Alden Tucker, Sloane Maternity Hospital
George M. Tuttle, 49 W. 38th st
James P. Tuttle, 35 W. 45th st
Henry H. Tyson, Jr., 47 W. 51st st
Wm. W. Van Arsdale, 207 W. 56th st
Francis Valk, 163 E. 37th st
Bina Potter Vandenbergh, 356 Lexington av
Horace C. Vandenbergh, 356 Lexington av
John Van der Poel, 36 W. 39th st
S. Oakley Van der Poel, 47 E. 25th st
Waldron B. Vanderpoel, 106 E. 24th st
B. C. Vaughn, 209 W. 55th st
Frank Van Fleet, 49 E. 23d st
Ira Van Gieson, 94 Kent st, Brooklyn
Moses D. Van Pelt, 453 W. 128th st
Richard Van Santvoord, 106 W. 122d street
Wm. W. Van Valzah, 10 E. 43d st
Edward H. Van Winkle, 25 W. 9th st
Maus R. Vedder, 690 Madison av
Hiram N. Vinberg, 127 E. 61st st
Cæsar A. Von Ramdohr, 45 Irving pl
Ralph Waldo, 72 W. 45th st
Louis Waldstein, 450 Madison av
D. Ernest Walker, 215 W. 43d st
Henry F. Walker, 8 E. 30th st
John B. Walker, 33 E. 33d st
L. Pope Walker, 25 E. 24th st
Joseph G. Wallech, 7 W. 82d st
Josephine Walter, 101 W. 75th st
Edwin F. Ward, 29 W. 36th st
Everett S. Warner, 117 E. 26th st
Frederick M. Warner, 66 W. 56th st
John W. Warner, 107 E. 72d st
John Warren, 47 E. 30th st
John S. Warren, 150 W. 48th st
Leonard Weber, 25 W. 46th st
David Webster, 327 Madison av
John E. Weeks, 154 Madison av
Robert F. Weir, 37 W. 33d st
Julius Weiss, 329 W. 28th st.
Faneuil D. Weiss, 46 W. 20th st
Brooks H. Wells, 71 W. 45th st
Sara Welt, 232 E. 58th st
Edmund C. Wendt, 712 Madison av
Frank E. West, 29 Schermerhorn st, Brooklyn
W. H. Weston, 400 W. 22d st
Benjamin F. Westbrook, 174 Clinton st, Brooklyn
George G. Wheelock, 75 Park av
Charles B. White, 107 W. 72d st
Granville M. White, 272 W. 77th st
J. Blake White, 1013 Madison av
Octavius A. White, 1011 Madison av
Royal Whitman, 126 W. 59th st
Joseph Wiener, 1046 5th av
Rudolph G. Wiener, 48 E. 65th st
Frederic H. Wiggin, 55 W. 36th st
Reynold W. Wilcox, 706 Madison av
Thomas H. Willard, Madis'n av & 23d st
Mark H. Williams, 227 W. 135th st
Herbert F. Williams, 363 Grand av, Brooklyn
Gustavus S. Winston, 42 W. 39th st
Joseph E. Winters, 36 W. 32d st
Rudolph A. Witthaus, 118 W. 55th st
Charles S. Wood, 137 W. 47th st
Wm. B. Wood, 23 E. 41st st
J. McGaw Woodbury, 28 W. 20th st
George Woolsey, 49 E. 30th st
Jonathan Wright, 73 Remsen st, Brooklyn
J. Willston Wright, 143 W. 81st st
Frederick W. Wunderlich, 165 Remsen st, Brooklyn
John A. Wyeth, 27 E. 38th st
Robert H. Wylie, 215 W. 43d st
W. Gill Wylie, 28 W. 40th st
Leroy M. Yale, 432 Madison av
J. Van Doren Young, 108 W. 75th st
Wm. Young, Cold Spring, N. Y.
Adolph Zeh, 343 W. 50th st

Number of Resident Fellows, 772.

MEDICAL SOCIETY OF THE COUNTY OF NIAGARA.

MEETINGS.— Annual first Tuesday in June; semi-annual, first Tuesday in January; quarterly, first Tuesday in April and September.

Officers. (June, 1893.)

F. J. Baker, *President.*
M. S. Kittinger, *Vice-President.*
H. H. Mayne, *Secretary.*
John Foote, *Treasurer.*

Censors: A. N. Moore, T. B. Cosford, F. J. Baker, Walter McChesney, H. A. Wilmot.

Committee on Hygiene.

M. S. Kittinger, *Chairman.* A. G. Skinner, A. N. Moore
H. A. Wilmot, T. B. Cosford, M. L. Lang,
F. J. Baker, J. W. Corman, W. Q. Huggins.

Members.

F. J. Baker, Lockport
J. W. Bickford, Lockport
Gardiner C. Clark, Niagara Falls
J. W. Cole, Newfane
J. W. Corman, Beach Ridge
T. B. Cosford, Lockport
F. C. Durand, Lockport
G. W. Eddy, Lewiston
Peter Faling, Gasport
W. J. Falkner, Youngstown
John Foote, Lockport
F. Gaskill, Wilson
J. B. Hartwell, Lockport
J. H. Helmer, Lockport
L. J. Hixson, Laselle
H. C. Hill, Lockport
W. H. Hodson, Lockport
W. Q. Huggins, Sanborn
M. S. Kittinger, Lockport
M. L. Lang, Suspension Bridge
W. H. Loomis, Lockport
Walter McChesney, Tonawanda
B. I. Manchester, Royalton
H. H. Mayne, Lockport
A. N. Moore, Lockport
D. H. Murphy, Royalton
C. N. Palmer, Lockport
W. J. Ransom, Lockport
Wm. C. Raymond, Cambria
W. B. Rice, Lockport
E. N. S. Ringueberg, Lockport
C. H. Turner, Hartland
W. H. Walker, Lockport
H. A. Wilmot, Middleport
W. C. Wood, Lockport

Number of Members, 35.

Deceased: W. B. Gould, Lockport.

MEDICAL SOCIETY OF THE COUNTY OF ONEIDA.

MEETINGS. — Annual, second Tuesday in April; semi-annual, second Tuesday in October; quarterly, second Tuesday in July, January, and April. The semi-annual meeting is held in Rome; the others in Utica.

Officers. (April, 1894.)

Hamilton S. Quin, *President.* F. H. Peck, *Vice-President.*
David S. Eynon, *Secretary.* Herbert G. Jones, *Treasurer.*
W. H. Booth, *Librarian.*

Censors: W. M. Towsley, Claude Wilson, F. H. Peck, Mathias Cook, Thomas G. Nock.

Committee on Hygiene: W. J. Schuyler, W. M. Towsley, M. W. Hunt, T. G. Nock, T. Z. Jones.

Delegates to State Medical Society: J. G. Kilbourn, D. A. Barnum, L. Swartwout.

Members.

(Where no town is mentioned, Utica is to be understood.)

E. P. Abbott, Oriskany
C. E. Atwood, Bloomingdale Hospit'l
Charles G. Bacon, Camden
Smith Baker, Rowland's building
M. M. Bagg, 6 Pearl st
D. A. Barnum, Cassville
F. M. Barrows, Clinton
F. E. Barrows, Detroit, Mich
H. G. Bartlett, Oriskany Falls
Thomas J. Bergin, 93 John st
David Besee, Utica
G. Alder Blumer, State Hospital
W. H. Booth, Rowland's building
A. J. Browne, Carlile building
W. H. Brownell, Utica
Wales Buell, Walesville
W. A. Burgess, 238 Genesee st
Martin Cavana, Oneida, Madison Co.
Alonzo Churchill, Parker block
E. P. Clark, Utica
Wallace Clark, 136 Park av
Ira M. Comstock, New York Mills

J. B. Cooke, New York City
Mathias Cook, 92 Columbia st
T. H. Cox, Lee Centre
Delos A. Crane, Holland Patent
R. R. Daly, State Hospital
M. J. Davies, Utica
A. P. Dodge, Oneida Castle
C. V. J. Doolittle, Bridgewater
James W. Douglass, Boonville
H. G. Dubois, Camden
W. C. Duke, Forestport
D. C. Dye, Carlile building
Eliza M. Ellenwood, Rome
G. P. English, Boonville
D. S. Eynon, Utica
G. M. Fisher, Clayville
Thomas M. Flandreau, Rome
W. E. Ford, 266 Genesee st
Charles E. Fraser, Rome
Charles E. Fraser, Jr., Rome
Jefferson C. Fraser, Lee
Conway Frost, Clinton
Earl D. Fuller, 148 Columbia st
F. A. Gary, Vernon
W. C. Gibson, Utica
Wm. M. Gibson, 260 Genesee st
A. A. Gillette, Rome
J. H. Glass, 246 Genesee st
Francis T. Gorton, Waterville
W. W. Gray, Auburn
W. R. Griswold, New Hartford
Joseph V. Harberer, 66 Miller st
C. R. Hart, New Hartford
W. J. Harrer, Utica
Thomas Hays, Deerfield, office Utica
Robert H. Hews, North Western
J. D. Hilton, Washington Mills
A. L. Holden, 132 South st
Ira D. Hopkins, 25 Blandina st
Henry R. Hughes, Clinton
J. G. Hunt, 192 Genesee st
Myron W. Hunt, Holland Patent
E. M. Hyland, 221 Genesee st
Wm. M. James, 166 Genesee st
Herbert G. Jones, Utica
J. D. Jones, Utica
James E. Jones, Clayville
H. W. Jones, Waterville
L. H. Jones, Utica
M. B. Jones, Camden
Thomas Z. Jones, Waterville
Judson G. Kilbourn, 247 Genesee st
C. W. Kinney, Washington Mills
George A. Krug, Utica
William Kuhn, Rome
E. J. Lawton, Rome
Joseph I. Lindsay, Clayville
Wm. Mahon, State Hospital
James McCullough, Remsen
Juliette E. Marchant, Rome
W. R. Marsden, Utica
A. W. Marsh, Oriskany Falls
S. C. Maxson, Utica
G. Leroy Menzie, Vernon
Charlotte L. Merrick, Utica
James Middleditch, Rome
T. M. Miller, Deerfield
Charles Munger, Knoxboro
William H. Nelson, Taberg
H. Nicholas, North Bay
Thomas G. Nock, Jr., Rome
John B. Nold, Utica
L. F. Pattingil, 221 Genesee st
H. C. Palmer, 253 Genesee st
H. L. Palmer, Utica State Hospital
W. B. Palmer, 30 South st
F. H. Peck, Clinton
Johnson Pillmore, Delta
G. J. Pollard, Oriskany Falls
William Powell, Utica
H. Frank Preston, Utica
Medina Preston, Sangerfield
Hamilton S. Quin, 238 Genesee st
William S. Ralph, 26 Court st
Edwin W. Raynor, Horsey block
C. C. Reid, Rome
H. G. Reid, Westonville
Layette Rinkle, Boonville
D. H. Roberts, Trenton
J. Ross, Utica
Chas. P. Russell, 196 Genesee st
Stephen P. Russell, Ava
W. D. Russell, New Hartford
W. J. Schuyler, 266 Genesee st
Thomas P. Scully, Rome
Geo. Seymour, 227 Genesee st
H. E. Shumway, Utica
A. R. Simmons, Utica
Hugh Sloan, 142 Columbia st
A. H. Smith, Camden
Chas. E. Smith, Whitestown
Witmore Steele, Utica State Hospital
Edward J. Stevens, 183 Genesee st
Henry C. Sutton, Rome
R. E. Sutton, Rose
Charles W. Shaver, Florence
L Swartwout, Prospect
Chas. B. Tefft, Utica
Louis A. Tourtellot, 40 Broad st
Wm. M. Towsley, Camden
F. P. Utley, Deansville
T. A. Vedder, 29 Oneida
Chas. G. Wagner, Binghamton State Hospital
Charles G. Ward, Utica
Charles R. Weed, 226 Genesee st
Joseph E. West, 379 Genesee st
W. E. Wetmore, Utica
James H. Whaley, Rome
E. G. Williams, Remsen
Claude Wilson, Waterville
Hiram K. Worden, Westmoreland

Number of Members, 144.

Deceased : J. K. Chamberlayne, Utica, October 5, 1893, æt. 61.

MEDICAL SOCIETY OF THE COUNTY OF ONONDAGA.

(Organized in 1806.)

MEETINGS.— Annual, second Tuesday in May; semi-annual, third Tuesday in December; quarterly, at such intermediate times as the Society may direct. All meetings are held at Syracuse.

Officers. (May, 1894.)

J. H. Coe, *President.* F. W. Slocum, *Vice-President.*
D. H. Murray, *Secretary.* Margaret Stanton, *Treasurer.*

Delegates to State Medical Society: T. H. Halstead, F. W. Slocum, F. W. Sears.

Members.

(Where the town is not mentioned, Syracuse is to be understood.)

Robert Aberdein, 2 Greeley block
Henry B. Allen, 326 Montgomery st
W. J. Ayling, 318 Mulberry st
Theresa Bannan, 503 Warren st
John A. Belch, S. Salina st
A. C. Benedict, 334 Montgomery st
Charles H. Benson, Seymour st
C. E. Billington, 614 E. Fayette st
G. L. Brown, Euclid
U. Higgins Brown, 312 Warren st
John W. Brown, Mottville
D. W. Burdick, Syracuse
F. H. Butler, 204 Seymour st
A. J. Campbell, 333 Warren st
James E. Carr, Jordan
J. C. Carson, State Asylum
George E. Clark, Skaneateles
Gaylord P. Clark, W. Genesee st
Frank R. Coe, Warners
J. H. Coe, 804 E. Genesee st
Allen Cone, Elbridge
Geo. W. Cook, Syracuse House block
S. Ellis Crane, Onondaga Valley
S. Boyce Craton, E. Genesee st
William A. Curtin, E. Fayette st
A. J. Dallas, 340 Warren st
Charles N. Daman, 621 E. Genesee st
L. P. Deming, 332 Montgomery st
O. G. Dibble, Pompey
H. D. Didama, 424 S. Salina st
F. O. Donohue, 410 Warren st
A. G. Doust, Delaware st
Gregory Doyle, 307 W. Genesee st
J. P. Dunlap, 408 E. Genesee st
Wm. H. Dunlap, 408 E. Genesee st
Wm. H. Dwinell, Tully
Thomas B. Dwyer, 624 Harrison st
A. S. Edwards, 1506 N. Salina st
G. A. Edwards, E. Jefferson st
S. G. Ellis, 419 Irving st
H. L. Elsner, 516 Prospect av
M. B. Fairchild, 1305 N. Salina st
J. W. Fry, 1 Griffin block, Lock st
T. H. Halstead, 452 S. Salina st
Juliet E. Hanchett, 601 Warren st
R. C. Hanchett, 3 Joy building
Carrie A. Hatch, 110 Onondaga st
Kate Hathaway, State Asylum
Hiram B. Hawley, N. Salina st
A. D. Head, 202 E. Genesee st
George T. Head, 107 W. Kenedy st
C. E. Heaton, Baldwinsville
J. L. Heffron, 448 S. Salina st
Mrs. E. J. Holcomb, 501 E. Fayette st
Nathan Jacobson, 430 S. Salina st
W. R. Johnson, 19 Yates block
Joel G. Justin, 501 E. Fayette st
J. F. Kaufman, Church st
D. A. Kellogg, Navarino
J. V. Kendall, Baldwinsville
George R. Kinne, 626 Gifford st
J. W. Knapp, 432 W. Genesee st
Jonathan Kneeland, South Onondaga
Charles E. McClary, 110 S. avenue
D. J. McLaughlin, Skaneateles Falls
R. C. McLennan, 414 S. Salina st
Frank McMarron, The Dunston
D. McNamara, 243 W. Genesee st
Charles M. Magee, cor. West and Syracuse st
F. W. Marlow, 401 Montgomery st
A. W. Marsh, E. Syracuse
Edwin R. Maxson, 818 Madison st
E. S. Maxson, 818 Madison st
Wm. H. May, 800 E. Fayette st
W. H. Maynard, 358 Delaware st
Alfred Mercer, 324 Montgomery st
A. C. Mercer, 324 Montgomery st
H. D. Merwin, Cicero
A. B. Miller, 326 Montgomery st
E. L. Mooney, 416 Warren st
J. A. Mowris, Lafayette
J. F. Munn, 329 Warren st
W. W. Munson, Otisco
E. S. Mumford, 513 E. Fayette st
D. H. Murray, 426 James st
Wm. M. F. Nelson
Horace Nims, Manlius
O. W. Oberlander, 310 Ash st
Scott Owen, 223 Montgomery st
Charles L. Parker, Onondaga
Israel Parsons, Marcellus

H. H. Pease, 320 Montgomery st
W. T. Plant, 222 Harrison st
J. D. Potter, Delphi
George M. Price, 704 Catharine st
A. B. Randall, 420 Warren st
H. E. Richardson, E. Syracuse
C. S. Roberts, 7 Clinton place
John H. Robson, Elbridge
Arthur B. Rood, Manlius station
M. G. Rood, 422 Warren st
Joseph C. Roth, 435 Gifford st
Mrs. E. H. Runion, 303 E. Onondaga st
Frank J. Rupp, Butternut st
E. S. Sampson, North Syracuse
L. A. Saxer, 514 Prospect av
F. W. Sears, cor. Warren & Onondaga
John Shoudy, E. Onondaga
J. P. Shumway, 5 Emerson av
E. C. Skinner, E. Syracuse
I. M. Slingerland, Fayetteville
F. W. Slocum, Camillus
Clara Smith, 503 Warren st
F. W. Smith, S. W. cor Gifford st
Wm. M. Smith, 138 Holland st
S. F. Snow, 117 E. Jefferson st
Margaret Stanton, 104 Marshall st
F. H. Stephenson, 307 Warren st
F. A. Strong, Brewerton
O. A. Thomas, 813 S. Salina st
H. P. Tolman, Onondaga Valley
D. M. Totman, 303 Montgomery st
Van Dyke Tripp, Borodino
A. F. Vadeboncœur, 354 Green st
Eli Van De Warker, 404 Genesee st
John Van Duyn, 427 S. Salina st
N. P. Warner, 455 S. Salina st
Gervass M. Wasse, Baldwinsville
Lewis F. Weaver, 121 Green st
H. A. Weed, Jordan
Charles E. Weidman, Marcellus
Walter J. Werfleman, 908 N. Salina st
James Whitford, Onondaga Valley
R. A. Whitney, Liverpool
Hiram Wiggins, Elbridge
N. Wilbur, Fayetteville
C. F. Wright, Chicago
H. B. Wright, Skaneateles

Number of Members, 138.

Honorary Members: W. S. Cheesman, Auburn; Wendell C. Phillips, New York; Rev. E. G. Bush, Syracuse; A. A. Young, Newark; J. W. Knapp, Canastota.

Deceased: William B. Breed, Syracuse, October 24, 1893.

MEDICAL SOCIETY OF THE COUNTY OF ONTARIO.

MEETINGS.—Annual, second Tuesday in July; quarterly, second Tuesday in October, January and April.

Officers. (July, 1893.)

B. C. Loveland, *President.* O. J. Hallenbeck, *Vice-President.*
A. L. Beahan, *Secretary and Treasurer.*

Members.

A. D. Allen, Gorham
D. S. Allen, Hall's Corners
J. H. Allen, Gorham
A. L. Beahan, Canandaigua
F. P. Bell, Naples
F. R. Bentley, Cheshire
H. C. Buell, Canandaigua
D. R. Burrell, Canandaigua
J. B. Boroughs, Shortsville
M. R. Carson, Canandaigua
J. Pope Delaney, Geneva
J. F. Draper, Victor
H. M. Eddy, Geneva
L. E. Green, Honeoye
O. J. Hallenbeck, Canandaigua
W. G. Hemiup, Geneva
W. S. Hicks, Bristol
W. A. Howe, Phelps
John Hutchins, Cheshire
C. O. Jackson, Victor
J. H. Jewett, Canandaigua
B. C. Loveland, Clifton Springs
G. W. McClellan, Canandaigua
F. E. McClellan, Canandaigua
C. D. McCarthy, Geneva
B. F. McDowell, Canandaigua
D. J. Mallery, Bristol
A. M. Mead, Victor
H. W. Nichols, Canandaigua
J. R. Pratt, Manchester
John H. Pratt, Manchester
Frank R. Pratt, Manchester
F. B. Rasback, Phelps
T. D. Rupert, Geneva
George W. Sargent, Seneca Castle
E. B. Sayre, Allen's Hill
F. L. Stebbins, Geneva
C. C. Thayer, Clifton Springs
F. D. Vanderhoof, Phelps
G. H. Van Deusen, Gotham
S. B. Weitling, Naples
S. R. Wheeler, E. Bloomfield
L. F. Wilbur, Honeoye

Number of Members, 43.

Deceased: E. W. Simmons, Canandaigua, May 13, 1893, æt. 82.

MEDICAL SOCIETY OF THE COUNTY OF ORANGE.

(Organized July 1, 1806.)

MEETINGS. — Annual, first Tuesday in May; semi-annual, first Tuesday in October.

Officers. (May, 1894.)

B. Pillsbury, *President.* A. E. Adams, *Vice-President.*
Theo. D. Mills, *Secretary.* J. H. Thompson, *Treasurer.*

Censors: Smith Ely, H. Hardenburgh, G. A. Emory.

Committee on Hygiene: Sol. Van Etten, Burke Pillsbury, J. H. Thompson, G. Gartzmann.

Delegates to State Medical Society: Wm. L. Cuddeback, J. B. Hulett.
Alternates: A. V. Jova, W. T. Seeley.

Members.

A. E. Adams, Newburgh
C. W. Banks, Port Jervis
Wm. Beattie, Cornwall
George S. Bond, Washingtonville
E. H. Borst, Newburgh
H. K. Bradner, Warwick
W. B. Bradner, Warwick
A. L. Brown, Cornwall
C. W. Butler, Cornwall
S. G. Carpenter, Chester
D. T. Condict, Goshen
Clinton G. Cooley, Montgomery
Wm. L. Cuddeback, Port Jervis
H. O. Davis, Howells
F W. Dennis, Unionville
Wm. E. Douglas, Middletown
S. D. Dubois, Blooming Grove
Charles Duffy, Newburgh
E. Ross Elliott, Montgomery
E. S. Elmer, Woodbury
Smith Ely, Newburgh
G. A. Emory, Middletown
Wm. Evans, Westtown
Harvey Everett, Middletown
A. P. Farries, Florida
Gaslav Gartzmann, Newburgh
W. F. Gleason, Newburgh
Thomas S. Gillson, Middletown
A. M. Goodman, Jr., Salisbury
Lewis Hanmore, Newburgh
H. Hardenburgh, Port Jervis
John T. Howell, Newburgh
Joseph B. Hulett, Middletown
A. V. Jova, Newburgh
A. D. Leonard, Central Valley
D. G. Lippincott, Campbell Hall
T. D. Mills, Middletown
J. Moffat, Washingtonville
R. V. K. Montfort, Newburgh
Mrs. E. R. G. Myer, Poughkeepsie
F. D. Myers, Slate Hill
Wm. J. Nelson, Middletown
E. A. Nugent, Unionville
Arthur Pell, Goshen
J. B. Peters, Walden
L. R. Pierce, Chester
B. Pillsbury, Middletown
H. A. Pooler, Goshen
E. Potts, Port Jervis
Willis I. Purdy, Middletown
H. H. Robinson, Goshen
A. Santee, Scotchtown
W. T. Seeley, Amity
Charles Skinner, Port Jervis
D. B. Smiley, Middletown
C. P. Smith, Chester
M. C. Stone, Newburgh
Hugh M. Struble, Middletown
Henry B. Swartout, Port Jervis
Robert Taylor, Port Jervis
W. C. Terry, Ridgebury
J. H. Thompson, Goshen
W. H. Woodruff, Pine Bush
Theodore Writer, Otisville

Number of Members, 64.

Deceased: Solomon Van Etten, Port Jervis, July 7, 1894, æt. 65.

MEDICAL SOCIETY OF THE COUNTY OF ORLEANS.

(Organized January 8, 1873.)

MEETINGS. — Annual, first Thursday in November; semi-annual, first Thursday in May.

Officers. (November, 1893.)

George J. Lund, *President.* F. B. Storer, *Vice-President.*
D. H. Brennan, *Secretary and Treasurer.*

Censors: C. E. Fairman, J. T. James, J. J. Simonds, W. F. Eaman, Fred L. June.

Delegate to State Medical Society: George J. Lund.

Members.

E. R. Armstrong, Holley
R. W. Bamber, Kendall
D. H. Brennan, Albion
M. L. Caverly, Albion
James Chapman, Medina
Samuel R. Q. Cochrane, Albion
J. G. Dolley, Albion
W. F. Eaman, Gaines
Charles E. Fairman, Lydonville
William Fitch, Knowlesville
Harvey L. James, Shelby
John T. James, Medina
F. L. June, Waterport
Tousley B. Lewis, Albion
George J. Lund, Medina
Edward Munson, Medina
J. J. Simonds, Barre Centre
J. F. Stokes, Eagle Harbor
F. B. Storer, Holley
John E. Sutton, Albion
J. H. Taylor, Holley
E. M. Tompkins, Knowlesville
H. C. Tompkins, Knowlesville
Mrs. Harriet N. Watson, Albion
E. Whittier, East Carlton

Number of Members, 25.

MEDICAL SOCIETY OF THE COUNTY OF OSWEGO.

(Organized in 1821.)

MEETINGS.—Annual, second Tuesday in June; semi-annual, second Tuesday in December, at Oswego.

Officers. (June, 1893. List not revised.)

H. W. Caldwell, *President.* Charles R. Lee, *Vice-President.*
F. L. Cooley, *Secretary.* Charles G. Bacon, *Treasurer.*

Censors: J. K. Stockwell, E. F. Marsh, S. J. Crockett, J. B. Todd, J. L. Moer.

Delegates to State Medical Society: J. K. Stockwell, E. F. Marsh.

Members.

W. G. Babcock, Cleveland
C. G. Bacon, Fulton
C. J. Bacon, Camden
N. W. Bates, Central Square
D. D. Becker, Mexico
Strong M. Bennett, Mexico
E. H. Boyd, Hannibal
W. J. Bulger, Oswego
H. W. Caldwell, Pulaski
C. C. P. Clark, Oswego
A. S. Coe, Oswego
C. M. Coe, Lycoming
F. R. Coe, Sand Bank
F. L. Cooley, Oswego
R. N. Cooley, Hannibal Center
Wm. B. Coye, Fulton
S. J. Crockett, Sandy Creek
Byron Dewitt, Oswego
R. J. Dimon, Hastings
P. M. Dowd, Oswego
D. D. Drake, Central Square
E. J. Drury, Phœnix
J. W. Eddy, Oswego
Joseph Gardinier, Williamstown
Albert W. Green, Palermo
T. J. Green, Mexico
N. F. Hall, Fulton
John E. Hamill, Phœnix
Vincent G. Hamill, Phœnix
Frank L. Harter, Parish
Cyrus Havens, Hannibal
D. C. Highriter, New Haven
LeRoy F. Hollis, Minetto
James S. Howard, Oswego
J. W. Huntington, Mexico
Mary K. Hutchins, Oswego
George P. Johnson, Mexico
Ira L. Jones, Minetto
J. T. Langan, Oswego
C. M. Lee, Fulton
C. R. Lee, Fulton
F. S. Low, Pulaski
E. F. Marsh, Fulton
H. P. Marsh, Fulton
J. H. Mease, Oswego
J. L. Moer, South Richland
G. W. Nelson, Orwell
J. Pero, West Amboy
H. D. C. Phelps, Oswego
E. Rainier, Oswego
Alfred Rice, Hannibal
C. A. Sheridan, Oswego
J. K. Stockwell, Oswego
A. L. Thompson, Sandy Creek
J. B. Todd, Parish
Wm. C. Todt, Oswego
W. M. Wells, Oswego Falls
G. G. Whittaker, Oswego Falls
Hadwen P. Wilcox, Central Square

Number of Members, 59.

Honorary Members: C. H. Butler, Oswego, J. C. Curtis, D.D.S., Fulton, J. V. Kendall, Baldwinsville.

MEDICAL SOCIETY OF THE COUNTY OF OTSEGO.

MEETINGS.—Annual, third Tuesday in July, at Cooperstown; semi-annual, third Tuesday in January; quarterly, as directed at each regular meeting.

Officers. (July, 1893.)

Geo. F. Entler, *President.* E. E. Dye, *Vice-President.*
H. W. Boorn, *Secretary.* O. W. Peck, *Treasurer.*

Delegates to State Medical Society: H. Lathrop, W. H. Leonard.

Members.

Geo. A. Armstrong, Burlington Flats
Wilson T. Bassett, Cooperstown
B. E. Bishop, Garrattsville
A. D. Blakely, Milford
H. D. Blanchard, Portlandville
Henry W. Boorn, Schenevus
A. H. Brownell, Oneonta
Andrew J. Butler, Wells Bridge
Meigs Case, Oneonta
Lorenzo B. Chapman, West Laurens
Chas. H. Chesebro, Unadilla Forks
B. A. Church, Oneonta
H. H. Clapsaddle, Toddsville
W. B. Crane, Richfield Springs
David H. Davies, East Worcester
E. E. Dye, Fly Creek
J. P. Elliott, Oneonta
M. K. Engell, South Valley
George F. Entler, Oneonta
M. L. Ford, Oneonta
Charles T. Fox, Garrattsville
John W. Green, West Laurens
W. H. Hall, Morris
H. T. Harris, Laurens
L. H. Hills, Binghamton
E. E. Houghton, Schenevus
E. L. Johnson, Hartwick
D. R. Kenyon, Sherburne, Chenango Co
Horace Lathrop, Cooperstown
J. K. Leaning, Cooperstown
Wm. H. Leonard, Worcester
W. R. Lough, Edmeston Centre
J. H. Martin, Otego
George Merritt, Cherry Valley
George L. Merritt, Cherry Valley
John H. Moon, East Springfield
G. S. Olin, Oneonta
C. E. Parish, Maryland
Ozias W. Peck, Oneonta
S. G. Pomeroy, West Oneonta
L. H. Quackenbush, Binghamton
A. S. Seeber, Milford
W. R. Seeber, Milford
George A. Sloan, Westford
Julian C. Smith, Oneonta
Nathan Smith, Richmondville
E. W. Spafford, Portlandville
J. W. Sterricker, Roseboom
P. Kerney Strong, Laurens
J. W. Swanson, Springfield Centre
J. J. Sweet, Unadilla
G. C. Thayer, Cooperstown
E. Travis, Masonville, Delaware Co
J. H. Van Rensselaer, Oneonta
William Whiteford, Schenevus

Number of Members, 54.

Honorary Member.

W. A. Thayer, Cooperstown.

MEDICAL SOCIETY OF THE COUNTY OF PUTNAM.

(Organized July 28, 1874.)

MEETINGS.—Annual, fourth Tuesday in April; semi-annual, fourth Tuesday in October.

Officers. (April, 1894.)

A. La Monte, *President.* J. E. Card, Jr., *Vice-President.*
J. E. Reed, *Secretary.* A. Ely, *Treasurer.*

Censors: J. E. Card, Jr., J. E. Reed, N. W. Wheeler.

Delegate to State Medical Society: Austin La Monte.

Members.

J. Edson Card, Jr., Mahopac
Addison Ely, Carmel
Austin La Monte, Carmel
George W. Murdock, Cold Spring
J. E. Reed, Carmel
Nathan W. Wheeler, Patterson

Number of Members, 6.

Honorary Member.

H. Pearce, Pawling, N. Y.

Removed: Lewis H. Miller, Brewster, to Brooklyn.

MEDICAL SOCIETY OF THE COUNTY OF QUEENS.

MEETINGS.—Annual, last Tuesday in May; semi-annual, last Tuesday in October.

Officers. (May, 1894.)

John Mann, *President.* R. F. Macfarlane, *Vice-President.*
James S. Cooley, *Secretary and Treasurer.*

Censors: J. H. Bogart, E. D. Skinner, Walter Lindsay, L. N. Lanehart, J. F. Burns.

Delegates to State Medical Society: James S. Cooley, L. N. Lanehart, C. G. J. Finn.

Members.

R. B. Baisley, East Rockaway
Charles H. Barker, Jamaica
J. H. Barry, Long Island City
J. H. Bogart, Roslyn
W. J. Burnett, Long Island City
Jno. F. Burns, Long Island City
M. S. Caldwell, Far Rockaway
Wm. I. Cocke, Port Washington
A. C. Combes, Newtown
R. C. F. Combes, Woodhaven
James S. Cooley, Glen Cove
F. T. DeLano, Rockville Centre
George W. Faller, Oyster Bay
C. G. J. Finn, Hempstead
Neil O. Fitch, Astoria
Peter Y. Frye, Oyster Bay
Wm. B. Gilsson, Huntington
E. A. Goodridge, Flushing
Charles J. Hall, Glen Cove
G. H. Hammond, Freeport
A. S. Heath, Baldwins
Samuel Hendrickson, Jamaica
Skidmore Hendrickson, Brooklyn
M. W. Herriman, Long Island City
J. P. Heyen, Farmingdale
J. R. Hinkson, Long Island City
Charles Hogeboom, Cedarhurst
J. E. Hutcheson, Rockville Centre
R. W. Hutcheson, Rockville Centre
L. N. Lanehart, Hempstead
Walter Lindsay, Huntington
C. H. Ludlum, Hempstead
R. F. MacFarlane, Long Island City
John Mann, Jericho
P. J. McKeon, Long Island City
G. K. Meynen, Jamaica
Edward Mueller, College Point
W. P. Overton, Cold Spring
John Ordronaux, Roslyn
R. F. B. Seaman, Locust Valley
R. S. Seaman, New York City
E. D. Skinner, Mineola
S. B. Smallwood, Astoria
Benj. G. Strong, Long Island City
J. D. Trask, Astoria
John F. Valentine, Brooklyn
D. B. Whitney, East Norwich
Philip M. Wood, Jamaica
W. D. Wood, Jamaica
Fred. A. Wright, Glen Cove
Wm. H. Zabriskie, Glen Cove

Number of Members, 51.

Honorary Members.

Frank Baldwin, Brooklyn
Walter B. Chase, Brooklyn
Reuben Jeffrey, Brooklyn
Lewis A. Sayre, New York City

Deceased: Charles H. Barker, Jamaica, 1893, æt. 63.

MEDICAL SOCIETY OF THE COUNTY OF RENSSELAER.

(Organized 1806.)

MEETINGS.— Annual, second Tuesday in May; stated, second Tuesday in each month, except in July and August.

Officers. (May, 1894.)

Washington Akin, *President.* J. W. Morris, *Vice-President.*
M. D. Dickinson, *Secretary.* O. F. Kinloch, *Treasurer.*

Censors: H. C. Gordinier, G. A. Bradbury, I. N. Wright.

Delegates to State Medical Society: J. W. Morris, R. Brinsmade Bontecou, H. C. Gordinier.

Members.

(Where no town is mentioned, Troy is to be understood.)

W. Akin, 12 4th st
A. Allen, Crafton Centre
C. S. Allen, Greenbush
W. L. Allen, Greenbush
N. H. Ballou, Lansingburgh
Joseph E. Baynes, 2149 5th av
J. H. Bissell, 2187 5th av
R. B. Bontecou, 82 4th st
R. Brinsmade Bontecou, 82 4th st
B. S. Booth, 21 First st
G. A. Bradbury, Lansingburgh
H. B. Burton, 75 4th st
M. H. Burton, 75 4th st
E. W. Capron, Lansingburgh
J. H. Cipperly, 131 2d st
W. Cooper, 81 3d st
A. C. Crouse, Melrose
H. Defreest, Troy
M. D. Dickinson, 6 St. Paul's Place
M. Felter, 1626 5th av
E. D. Ferguson, 5th av and Broadway
Wm. Finder, Jr., 2 Union pl
George Fisher, 2187 5th av
H. C. Gordinier, 89 4th st
R. G. Goudie, 164 Congress st
Thomas Hannon, Hoosick Falls
C. Hann, Poestenkill
J. B. Harvie, 1741 5th av
T. B. Heimstreet, 14 Division st
C. B. Herrick, 1824 5th av
S. W. Houston, 2d st
J. C. Hutchison, 33 4th st
H. S. Ives, Lansingburgh
M. Keenan, 2301 6th av
O. F. Kinloch, 16 4th st
J. D. Lomax, Marshall Infirmary
F. T. McIntosh, 2654 5th av
D. Magee, 116 3d st
W. P. Mason, Prof. Chem. R. P. I.
J. McChesney, Pawling av
Leroy McLean, 21 1st st
O. Mallett, 339 2d st
F. E. Mayberry, Hoosick Falls
H. E. Mitchell, 84 4th st
E. W. Morehouse, 99 2d st
J. W. Morris, 1823 3d av
A. Y. Myers, Buskirk's Bridge
C. E. Nicholas, 25 1st st
J. O'Connor, Troy Hospital
J. C. O'Haire, 184 3d st
Z. Rousseau, Ferry and 2d sts
T. B. St. John, Centre Brunswick
W. W. Seymour, 105 3d st
S. A. Skinner, Hoosick Falls
F. Smith, 81 3d st
R. D. Traver, 14 4th st
B. J. Ward, 1 Cyprus st
R. H. Ward, 53 4th st
S. H. Webster, 811 River st
M. A. Wheeler, Albia
F. A. Winship, Eagle Mills
Isaac N. Wright, Averill Park

Number of Members, 62.

MEDICAL SOCIETY OF THE COUNTY OF RICHMOND.

(Organized July 10, 1806; reorganized January 17, 1855.)

MEETINGS.— Annual, first Wednesday in January; stated, first Wednesday in every month, 3.30 P. M., at the S. R. Smith Infirmary, New Brighton.

Officers. (January, 1894.)

J. J. Van Rensselaer, *President.* T. Walser, *Vice-President.*
H. C. Johnson, *Secretary and Treasurer.*

Censors: F. E. Martindale, J. E. Vidal, E. D. Coonley.

Delegate to State Medical Society: J. W. Wood.

Executive Committee: J. J. O'Dea, G. P. Jessup, C. W. Townsend.

Members.

F. T. Barber, Port Richmond
H. Beyer, Stapleton
W. T. Bourne, Tompkinsville
F. E. Clarke, West New Brighton
J. G. Clarke, West New Brighton
E. D. Coonley, Mariners' Harbor
A. D. Decker, Princess Bay
F. De Revere, Stapleton
R. Henry Golder, Rossville
G. C. Hubbard, Tottenville

C. L. Humphreys, Mariners' Harbor.
G. P. Jessup, New Dorp
H. C. Johnston, New Brighton
H. D. Joy, Snug Harbor
J. J. O'Dea, Stapleton
Wm. Bryan, West New Brighton
F. E. Martindale, Port Richmond
F. Mechtold, Stapleton
Isaac L. Millspaugh, Richmond
Jeff Scales, New Brighton
T. J. Thompson, Clifton
C. W. Townsend, New Brighton
J. J. Van Rensselaer, New Brighton
J. E. Vidal, Stapleton
Theodore Walser, New Brighton
W. C. Walser, West New Brighton
Walker Washington, Tottenville
S. E. Whitman, Port Richmond
J. W. Wood, Port Richmond
Number of Members, 29.

MEDICAL SOCIETY OF THE COUNTY OF ROCKLAND.

(Reorganized May 18, 1850.)

MEETINGS.—Annual, last Tuesday in May; semi-annual, last Tuesday in October.

Officers. (May, 1893. List not revised.)

E. B. Laird, *President.*
——— ———, *Secretary.*
E. H. Maynard, *Vice-President.*
I. C. Haring, *Librarian.*

Censors: A. O. Bogert, G. A. Blauvelt, J. O. Polhemus.

Delegate to State Medical Society: —— ———.

Members.

Garrett A. Blauvelt, Nyack
Albert O. Bogert, Pearl River
S. Demerest, Suffern
Isaac C. Herring, West Nyack
H. H. House, Rockland Lake
Eugene B. Laird, Haverstraw
Frank L. Laverseur, Haverstraw
C. H. Masten, Sparkill
E. H. Maynard, Nyack
J. O. Polhemus, Nyack
James J. Stephens, Tappantown
Number of Members, 11.

Honorary Member.

Isaac J. Wells, New York, N. Y.

Deceased: William Govan, Stony Point, March 22, 1894, æt. 76.

MEDICAL SOCIETY OF THE COUNTY OF ST. LAWRENCE.

(Reorganized 1861.)

MEETINGS.—Annual, third Tuesday in May; semi-annual, third Tuesday in October.

Officers. (May, 1894.)

Fred. F. Drury, *President.*
S. W. Close, *Secretary.*
J. M. Mosher, *Vice-President.*
J. S. Raymond, *Treasurer.*

Censors: Jesse Reynolds, B. F. Sherman, E. H. Bridges.

Delegate to State Medical Society: J. M. Mosher.

Members.

Andrew H. Allen, Gouverneur
F. D. Allen, Richville
F. A. Anderson, Massena
L. B. Baker, Russell
C. W. Bayley, Rensselaer Falls
C. C. Bartholomew, Ogdensburg
John N. Bassett, Jr., Canton
George W. Benton, Ogdensburg
Silas J. Bower, Waddington
E. H. Bridges, Ogdensburg
Silas E. Brown, Ogdensburg
J. H. Brownlow, Ogdensburg
H. H. Carpenter, Lawrenceville
S. W. Close, Gouverneur
G. R. Cook, Louisville
M. D. Cook, West Stockholm
W. S. Daly, Ogdensburg
S. W. Dodge, Massena

George H. Dowsey, Brasher Falls
A. C. Drury, Canton
Benjamin F. Drury, Gouverneur
Fred. F. Drury, Gouverneur
J. Q. Flood, Hopkinton
David M. Foss, Depeyster
James S. Gale, Canton
James Garvin, Morristown
A. B. Goodenough, Edwards
E. H. Hackett, North Lawrence
H. T. Hammond, Chase's Mills
W. B. Hanbridge, Ogdensburg
Charles B. Hawley, Gouverneur
Lucia E. Heaton, Canton
T. R. Hossie, Gouverneur
O. J. Hutchins, Ogdensburg
R. H. Hutchins, Ogdensburg
A. M. Larkin, Norwood
Orrell McFadden, Massena
Grant C. Madill, Ogdensburg
H. A. McIlmoyl, Ogdensburg
W. J. S. Miller, Depeyster
Peter Monakey, Gouverneur
Robert Morris, Ogdensburg
J. M. Mosher, Ogdensburg
Martin S. Parker, Parishville
T. A. Pease, Norwood
James A. Phillips, Morristown
John C. Preston, Canton
W. N. Rand, Rossie
J. S. Raymond, Ogdensburg
G. W. Reynolds, Madrid
Jessie Reynolds, Potsdam
W. H. Reynolds, Potsdam
George M. Russell, Crary's Mills
B. F. Sherman, Ogdensburg
John C. Sherman, Ogdensburg
Moses E. Smith, Colton
H. A. Stearns, Waddington
D. M. Taylor, Edwards
H. S. Stilwell, Ogdensburg
E. C. Walsh, Madrid
P. M. Wise, Ogdensburg

Number of Members, 61.

Deceased: Z. B. Bridges, Ogdensburg, N. Y., July 16, 1893, æt. 66.

MEDICAL SOCIETY OF THE COUNTY OF SARATOGA.

(Organized in July, 1807.)

MEETINGS.—Annual, first Tuesday in June; semi-annual, first Tuesday in December.

(This Society has had no communication with the State Society since 1884.)

Members.

J. M. Austin, New York
N. H. Ballou, Lansingburgh
C. Boughton, Waterford
F. M. Boyce, Saratoga Springs
C. D. Bull, Stillwater
A. B. Burger, Mechanicville
G. F. Comstock, Saratoga Springs
H. C. Cooper, Clifton Park
C. Ensign, Mechanicville
Frank Gow, Schuylerville
C. S. Grant, Saratoga Springs
W. H. Holl, Saratoga Springs
W. W. Hodgman, Saratoga Springs
E. G. Inlay, Saratoga Springs
I. G. Johnson, Greenfield Centre
A. C. Kniskern, Crescent
M. Lewis, Ballston Spa
John Moore, Bacon Hill
B. J. Murray, Saratoga Springs
T. E. Parkman, Rock City Falls
J. R. Preston, Schuylerville
L. B. Putnam, Saratoga Springs
T. B. Reynolds, Saratoga Springs
S. N. Rowell, Saratoga Springs
F. A. Sherman, Ballston Spa
H. Vandenburgh, Ballston Spa
F. A. Young, West Charlton

Number of Members, 28.

MEDICAL SOCIETY OF THE COUNTY OF SCHENECTADY.

(Organized January 16, 1869.)

MEETINGS.—Annual, second Tuesday in January; semi-annual, second Tuesday in June.

Officers. (January, 1894.)

J. A. Heatley, *President.* D. L. Kathan, *Vice-President.*
F. V. Brownell, *Secretary.* H. C. Van Zandt, *Treasurer.*

Censors: H. V. Mynderse, D. G. Barry, J. F. McEncroe.

Delegate to State Medical Society: Wm. T. Clute.

Members.

D. J. Barry, Schenectady
C. W. Briggs, Schenectady
F. V. Brownell, Schenectady
Peter Brumagham, Mariaville
B. W. Burland, Schenectady
N. C. Cheesman, Scotia
C. F. Clowe, Schenectady
W. T. Clute, Schenectady
Isaac De Zouche, Gloversville
C. C. Duryee, Schenectady
A. Ennis, Pattersonville
P. R. Furbeck, Gloversville
Charles Hammer, Schenectady
J. A. Heatley, Schenectady
D. L. Kathan, Schenectady
Henry Kurth, Schenectady
George E. McDonald, Schenectady
J. F. McEncroe, Schenectady
John Mackay, Schenectady
Jeanette Murray
H. V. Mynderse, Schenectady
Wm. Parsons, Fultonville
Wm. L. Pearson, Schenectady
Maurice Perkins, Schenectady
M. G. Plank, Schenectady
Joseph Raymond, Schenectady
James J. Reagles, Schenectady
J. L. Schoolcraft, Schenectady
G. L. Van Allen, Schenectady
E. P. Van Epps, Schenectady
H. C. Van Zandt, Schenectady
A. T. Vedder, Schenectady
L. T. Vedder, Schenectady
Edwin Young, West Glenville

Number of Members, 34.

Deceased: Dr. N. G. Daggett and Dr. Robert Fuller, of Schenectady.

MEDICAL SOCIETY OF THE COUNTY OF SCHOHARIE.

(Organized in 1806; reorganized in 1857.)

MEETINGS.—Annual, third Tuesday in May; semi-annual, second Tuesday in October.

Officers. (May, 1894.)

J. H. Weckel, *President.* LeRoy Becker, *Vice-President.*
H. F. Kingsley, *Secretary.* L. Cross, *Treasurer.*

Censors: Lemuel Cross, C. K. Frazier, H. Sperbeck, W. S. Layman, J. R. Brown.

Committee on Hygiene: W. S. Layman, H. Sperbeck, W. W. Burgett.

Delegate to the State Medical Society: E. O. Bruce.

Members.

LeRoy Becker, Cobleskill
F. P. Beard, Cobleskill
E. E. Billings, Gilboa
J. R. Brown, Seward
E. E. Brayman, Livingstonville
E. O. Bruce, Hyndsville
W. W. Burgett, Fultonham
C. S. Burnett, Summit
L. Cross, Cobleskill
C. Dickinson, Seward
J. A. Dockstader, Sharon Springs
C. K. Frazier, Cobleskill
D. Frazier, Cobleskill
Wm. Hagadorn, Gilboa
Abram L. Haines, Schoharie
R. Grant Havens, Jefferson
John Hotaling, Gallupville
George Jackson, Hunter's Land
E. L. Johnson, Central Bridge
H. F. Kingsley, Schoharie
Ezra Lawyer, Cobleskill
W. S. Layman, Schoharie
D. M. Leonard, Broome Centre
Edward Marsh, Sloansville
Seth A. Mereness, Carlisle
Charles B. Mosher, Richmondville
D. Norwood, Esperance
H. L. Odell, Sharon Springs
W. S. Rivenburgh, Middleburgh
R. J. Roscoe, Carlisle
Edgar S. Simpkins, Middleburgh
Nathan Smith, Richmondville
H. Sperbeck, Charlotteville
James W. Tibbits, Eminence
J. H. Vrooman, W. Blenheim
John H. Weckel, Breakabeen
Henry D. Wells, Middleburgh

Number of Members, 37.

MEDICAL SOCIETY OF THE COUNTY OF SCHUYLER.

(Organized December 29, 1857.)

MEETINGS.—Annual, second Tuesday in January; semi-annual, second Tuesday in July.

Officers.

W. H. Heist, *President.* J. Franklin Barnes, *Vice-President.*
George M. Post, *Secretary and Treasurer.*

Censors: S. B. Allen, E. H. Davis, W. H. Heist,
G. M. Post, Geo. P. Laylor.

Delegate to the State Medical Society: S. B. Allen.

Members.

S. B. Allen, Burdette
J. F. Barnes, Watkins
Wm. H. Beach, Catharine
A. L. Beahan, Canandaigua, N. Y
R. Bell, Monterey
M. L. Bennett, Watkins
D. W. Birge, Hector
John Boyce, Weston
E. H. Davis, Elmira
H. H. Fish, Mecklenberg
M. D. Hawes, North Hector
J. H. Hedden, Corning, Steuben Co.
W. H. Heist, Townsend
George P. Laylor, Townsend
George M. Post, Havana
D. W. Scutt, Havana
O. B. Sherwood, Cayutaville
B. T. Smelzer, Havana
G. O. Smith, Odessa
H. P. Stillwell, Burdette
J. A. Westlake, Elmira, Chemung Co.
L. T. White, Enfield, Tompkins Co.

Number of Members, 22.

Deceased: N. Nivison, Burdette, July 14, 1893, æt. 78.

THE MEDICAL SOCIETY OF THE COUNTY OF SENECA.

MEETINGS.—Annual, second Tuesday in May.

Officers.

W. S. Nelson, *President.* J. F. Carman, *Vice-President.*
D. F. Evarts, *Secretary.* Frank Seaman, *Treasurer.*

Delegates to Societies: A. Nellis, Jr., New York State Medical Society; E. Lester, American Medical Association; E. W. Bogardus, New York State Medical Association.

Members

A. J. Alleman, McDougall's
T. E. Bamford, Willard
Geo. A. Bellows, Waterloo
E. R. Bishop, Willard
M. D. Blaine, Geneva
E. W. Bogardus, Seneca Falls
G. B. Bristol, Ovid
J. F. Carlton, Fayette
J. F. Carman, Lodi
J. F. Crosby, Seneca Falls
John Denniston, Ovid
Richard Dey, Romulus
D. F. Evarts, Romulus
John Flickinger, Trumansburg
Louis A. Gold, Farmer
James Haslett, Waterloo
H. G. Hopkins, Willard
Elias Lester, Seneca Falls
P. J. McNamara, Seneca Falls
S. F. Mellen, Willard
W. S. Nelson, Seneca Falls
Charles W. Pilgrim, Willard
George Post, Ovid
Herbert E. Schoonmaker, Rochester
Frank Seaman, Seneca Falls
J. H. Sternberg, Waterloo
J. M. Townsend, Townsendville
S. R. Welles, Waterloo

Number of Members, 29.

Deceased: Alex. Nellis, Jr., Willard, December 27, 1893, æt. 47.

MEDICAL SOCIETY OF THE COUNTY OF STEUBEN.

MEETINGS.—Annual, second Tuesday in May; semi-annual, second Tuesday in January.

Officers. (1894.)

Herbert S. Gillett, *President.* B. R. Wakeman, *Vice-President.*
Chester T. Stewart, *Secretary and Treasurer.*

Censors: W. W. Smith, M. T. Babcock, C. B. Robertson, T. H. Pawling, T. B. Fowler.

Delegates to State Medical Society: C. S. Parkhill, T. O. Burlison.

Members.

H. R. Ainsworth, Addison
M. L. Alden, Hammondsport
A. A. Aldrich, Addison
Eli Allison, Wayne
Henry A. Argue, Corning
M. T. Babcock, Hammondsport
J. A. Bennett, Prattsburgh
H. M. Bourne, Corning
C. M. Brasted, Hornellsville
T. O. Burlison, Bath
Franklin Burr, Corning
George Cauderman, Hornellsville
Amelia A. Christie, Hornellsville
Willis S. Cobb, Corning
D. F. Cridler, Hornellsville
A. H. Cruttenden, Bath
Mrs. A. A. Dolson, Hornellsville
J. S. Dolson, Hornellsville
Lewis Fitzsimmons, South Poultney
T. B. Fowler, Cohocton
F. S. Gallagher, Naples, Ontario Co
A. L. Gilbert, North Cohocton
H. Gilbert, Hornellsville
H. S. Gillett, Savona
I. L. Goff, Cohocton
W. T. Green, Hornellsville
W. W. Green, Prattsburgh
Joseph Hoare, Corning
G. C. Hubbard, Hornellsville
John S. Hubbs, Hammondsport
M. B. Hubbs, Addison
C. O. Jackson, Cameron
Ambrose Kasson, Bath
J. R. Kelly, Hornellsville
Arthur Kendall, Corning
George W. Lane, Corning
H. G. Mace, Wallace
Thomas F. McNamara, Corning
J. H. McNett, Hornellsville
J. D. Mitchell, Hornellsville
H. B. Nichols, Pultney
S. B. H. Nichols, Corning
W. E. Palmer, Hornellsville
C. S. Parkhill, Hornellsville
Myron H. Parkhill, Howard
R. F. Parkhill, Howard
C. Patterson, Avoca
Thomas H. Pawling, Bath
M. M. Perry, Troupsburgh
Charles R. Phillips, Corning
Benjamin Picket, Canisteo
A. D. Robbins, Corning
C. B. Robertson, Towlesville
Denton W. Rodgers, Hornellsville
Robert J. Scott, Prattsburgh
W. Sheffield, Jasper
I. P. Smith, Bath
W. W. Smith, Avoca
B. M. Spencer, Hornellsville
C. P. Stevens, Wallace
Chester T. Stewart, Bath
P. K. Stoddard, Prattsburgh
Stephen M. Switzer, Bradford
C. J. Tomer, Savona
J. H. Trumbull, Hornellsville
Bertis R. Wakeman, Hornellsville
Eugene E. Webster, Hornellsville
Seymour C. Williamson, Canisteo
E. Winnie, Haskinville
F. A. Wygant, Cohocton

Number of Members, 70.

Deceased: Henry C. May, January 27, 1894; D. L. Case, Howard; M. D. Ellison, Canisteo.

MEDICAL SOCIETY OF THE COUNTY OF SUFFOLK.

(Organized July 22, 1806.)

MEETINGS.—Annual, in April, at Riverhead, during court week; semi-annual, in October, on the day and at the place directed at the April meeting.

Officers. (April, 1894.)

William S. Preston, *President.* Hugh Halsey, *Vice-President.*
H. H. Young, *Secretary.* B. D. Skinner, *Treasurer.*
J. H. Benjamin, *Librarian.*

Censors: C. L. Hildreth, James L. Halsey, J. F. Bell.

Delegate to State Medical Society: Samuel Blume.

Members.

Clarence A. Baker, Yaphank
Lester C. Baldwin, Southold
J. F. Bell, East Hampton
F. Everett Benjamin, Shelter Island
John H. Benjamin, Riverhead
W. S. Bennett, Patchogue
Samuel Blume, Riverhead
M. L. Chalmers, Port Jefferson
Silas R. Corwith, Bridgehampton
Robert G. Cornwall, Jamesport
L. B. Edwards, Patchogue
George T. Fanning, Stony Brook
Hugh Halsey, Southampton
James L. Halsey, Islip
Ed. H. Hamill, Newark
W. W. Hewlett, Babylon
Charles L. Hildreth, Southampton
Wm. A. Hulse, Bay Shore
C. D. Jones, Amityville
A. B. Leggett, Babylon
Charles A. Luce, Amityville
J. H. Maguire, Salem, Wash. Co.
Clarence C. Mills, Greenport
John Nugent, Southampton
Edward F. Preston, Amityville
Wm. S. Preston, Patchogue
B. F. Rogers, Sayville
Melville S. Kielmore, East Moriches
Barton D. Skinner, Greenport
J. R. Taylor, Sag Harbor
Arthur H. Terry, Patchogue
H. P. Terry, Riverhead
Charles E. Wells, Sag Harbor
H. H. Young, Riverhead

Number of Members, 34.

MEDICAL SOCIETY OF THE COUNTY OF SULLIVAN.

(Organized October 3, 1809.)

MEETINGS.— Annual, first Wednesday after the second Tuesday in June; semi-annual, whenever the Society direct at the annual meeting.

Officers. (June, 1894.)

Charles E. Piper, *President.* W. W. Murphy, *Vice-President.*
Charles S. Payne, *Secretary.* W. G. Steele, *Treasurer.*

Censors: F. A. McWilliams, C. E. Piper, G. F. Rice.

Delegate to State Medical Society: W. W. Appley.

Members.

W. W. Appley, Cochecton
George M. Beakes, Bloomingburgh
T. W. Bennett, Jeffersonville
J. A. Canthers, Monticello
E. Crocker, Narrowsburg
J. F. Curtelle, Mountaindale
W. H. DeKay, Hurleyville
N. B. Johnson, Barryville
S. A. Kemp, Callicoon
G. H. Lathrop, Livingston Manor
F. A. McWilliams, Monticello
W. W. Murphy, Liberty
Ridley C. Paine, Bethel
Chas. S. Payne, Liberty
G. F. Perry, Woodbourne
Chas. E. Piper, Wurtsboro
G. F. Rice, Jeffersonville
W. F. Sherwood, Liberty
W. G. Steele, Mongaup Valley
R. C. Tuttle, Rockland
W. S. Webster, Liberty

Number of Members, 21.

MEDICAL SOCIETY OF THE COUNTY OF TIOGA.

MEETINGS.—Annual, second Tuesday in January; first quarterly, second Tuesday in April; semi-annual, second Tuesday in July; second quarterly, second Tuesday in October.

Officers. (January, 1894.)

G. M. Cady, *President.* A. J. Harris, *Vice-President.*
R. D. Eastman, *Secretary.* I. S. Vreeland, *Treasurer.*

Censors: W. E. Johnson, H. L. Knapp, D. S. Anderson.

Delegate to State Medical Society: D. S. Anderson.

Members.

James Allen, Richford
D. S. Anderson, Owego
W. L. Ayer, Owego
James M. Barrett, Owego
G. W. Beach, Apalachin
Edward S. Beck, Owego
W. J. Burr, Newark Valley
George M. Cady, Nichols
C. W. Chidester, Weltonville
J. E. Dixon, Candor
R. D. Eastman, Berkshire
W. H. Fisher, Spencer
Henry A. Glover, Windham, Pa.
Chas. F. Griswold, Barton
D. D. Harnden, Waverly
R. S. Harnden, Waverly
A. J. Harris, Candor
C. R. Heaton, Owego
C. E. Hollenbeck, Halsey Valley
W. E. Johnson, Waverly
Hiram L. Knapp, Newark Valley
J. E. Leonard, Harford Mills
G. B. Lewis, Owego
I. W. Lewis, Apalachin
Alonzo Norris, Spencer
A. T. Pearsall, Owego
E. E. Pease, Nichols
A. W. Post, Tioga Centre
C. R. Rodgers, Newark Valley
C. L. Stiles, Owego
J. H. Tanner, Spencer
J. T. Tucker, Waverly
C. P. Vosburg, Halsey Valley
I. S. Vreeland, Waverly
Thomas Washburn, Spencer

Number of Members, 35.

MEDICAL SOCIETY OF THE COUNTY OF TOMPKINS.

(Organized about 1815; reorganized October, 1862.)

MEETINGS.—Annual, last Wednesday in May; semi-annual, last Wednesday in November.

Officers. (1894.)

Edward Meany, *President.* Eugene Baker, *Vice-President.*
W. H. Lockerby, *Secretary.* S. H. Peck, *Treasurer and Librarian.*

Censors: S. H. Peck, W. C. Gallagher, John Winslow, Eugene Baker, Edward Meany.

Committee on Hygiene: B. G. Wilder, James Law.

Delegate to State Medical Society: Chauncey P. Biggs.

Members.

Eugene Baker, Ithaca
Judson Beach, Etna
Platt C. Biggs, Ithaca
Chauncey P. Biggs, Ithaca
W. B. Brader, Ithaca
C. C. Cook, Newfield
James P. Fahey, Ithaca
W. C. Gallagher, Slaterville
F. A. Kerst, Trumansburg
E. O. Kyle, Ithaca
W. H. Lockerby, Ithaca
Edward Meany, Ithaca
E. R. Osterhout, Newfield
S. H. Peck, Ithaca
Burt G. Wilder, Ithaca
John Winslow, Ithaca

Number of Members, 16.

Honorary Members.

Prof. S. H. Gage, Ithaca Prof. James Law, Ithaca
Mrs. Gage.

MEDICAL SOCIETY OF THE COUNTY OF ULSTER.

MEETINGS.—Annual, last Tuesday in May, at Kingston; quarterly, second Tuesday in September, December and March, at such places as the Commitia Minora may direct.

Officers. (May, 1894.)

S. L. Dawes, *President.* G. S. LaMoree, *Vice-President.*
Chas. A. Munn, *Secretary.* Jacob Chambers, *Treasurer.*

Censors: A. H. Palmer, E. H. Loughran, A. H. Mambert, C. W. Crispell, P. Hayden.

Committee on Hygiene: J. Chambers, R. Crawford, C. W. Crispell, B. B. Bloom, C. A. Munn.

Delegates to State Medical Society: J. Hasbrouck, J. Chambers S. L. Dawes.

Members.

Benjamin R. Bevier, Napanock
B. B. Bloom, Shokan
Chas. S. Brower, Phœnicia
E. W. Carhart, Milton
Jacob Chambers, Kingston
E. D. Chipman, Saugerties
H. Craft, Stone Ridge
Rufus Crawford, West Camp
C. W. Crispell, Rondout
S. L. Dawes, Saugerties
Thomas S. Dawes, Saugerties
Jno. A. Decker, Ulster Park
C. De La Montayne, Port Ewen
W. F. Drake, West Hurley
J. F. S. Eastgate, Ellenville
J. Freston, Creek Locks
A. C. Gates, West Hurley
E. J. Gallagher, Kingston
W. W. Hadley, Stone Ridge
C. V. Hasbrouck, Rosendale
J. Hasbrouck, Port Ewen
W. D. Hasbrouck, Rondout
Patrick Hayden, Rosendale
P. D. B. Hoornbeck, Wawarsing
J. E. D. Hoornbeck, Kerhonkson
Augustus Hühne, Rondout
I. O. Keator, Accord
George S. La Moree, Highland
E. H. Loughran, Kingston
R. Loughran, Kingston
A. H. Mambert, Rondout
C. T. Montgomery, Glascow
Chas. A. Munn, Kingston
R. M. Murphy, Rondout
E. E. Norwood, Kingston
B. A. O'Bryan, Woodstock
A. H. Palmer, Marlborough
J. E. Preston, Kingston
Wm. C. J. Schmidt, Rondout
S. Schoonmaker, Kingston
A. A. Stern, Rondout
G. H. Van Gaasbeck, Shokan
H. Van Hoevenburgh, Kingston
Alfred S. Vrooman, High Falls
J. S. Wade, Kingston
J. Wolf, Rondout
Alfred Wolven, Phœnicia
J. D. Wurtz, Kingston
J. McF. Winfield, Brooklyn

Number of Members, 49.

Honorary Members.

A. T. Douglass, New London, Conn. Robert Newman, New York, N. Y.
George F. Shrady, New York, N. Y.

Deceased: C. L. Dodge, Kingston; Isaac C. Dart, Highland.

MEDICAL SOCIETY OF THE COUNTY OF WARREN.

MEETINGS.—Annual, second Tuesday in June, at Lake George, semi-annual, when and where the Society determine.

Officers. (June, 1894.)

G. R. Martine, *President.* D. J. Fitz Gerald, *Vice-President.*
G. H. McMurray, *Secretary.* Elias Bibby, *Treasurer.*

Censors: A. H. Phelps, D. M. Hall, D. B. Howard.

Delegate to State Medical Society: ——— ———

Members.

F. F. Aldrich, Chestertown
G. H. Aldrich, Stony Creek
Wm. D. Aldrich, Warrensburgh
W. W. Aldrich, Weaverton
Elias Bibby, Glens Falls
L. Charette, Warrensburgh
R. J. Eddy, Glens Falls
D. J. Fitz Gerald, Glens Falls
C. A. Foster, Glens Falls
D. M. Hall, Glens Falls
D. B. Howard, Warrensburgh
E. W. Howard, Warrensburgh
W. J. Hunt, Lake George
C. J. Loggins, Weaverton
A. Mallory, Chestertown
G. H. McMurray, Glens Falls
G. R. Martine, Glens Falls
A. H. Phelps, Glens Falls
F. H. Stevens, Lake George
Buel G. Streeter, Glens Falls
Fred B. Streeter, Glens Falls

Number of Members, 22.

Deceased; W. R. Adamson, Lake George, July 6, 1894, æt. 42.

MEDICAL SOCIETY OF THE COUNTY OF WASHINGTON

(Organized July 1, 1806.)

MEETINGS.— Annual, third Tuesday in May; semi-annual, first Tuesday in October.

Officers. (May, 1894.)

F. T. Beattie, *President.* G. B. Murray, *Vice-President.*
Henry Root, *Secretary and Treasurer.*

Censors: G. H. Whitcomb, S. J. Banker, C. E. Lambert.

Committee on Hygiene: F. H. Bramer, Ross Wilson, Wm. B. Melick.

Delegate to State Medical Society: W. B. Melick.

Members.

O. C. Baker, Brandon, Vt.
S J. Banker, Fort Edward
Franklin T. Beattie, Shushan
F. H. Braymer, W. Pawlet, Vt.
Frank H. Carpenter, West Rupert
J. Cipperly, Middle Falls
E. G. Clark, Sandy Hill
James S. Cooley, Glen Cove
C. J. Farley, Saranac Lake
Fred G. Fielding, Hartford
S. J. Finch, Fort Ann
T. Z. Gibbs, Fort Ann
H. Gray, Greenwich
P. Z. Hebert, London
A. Hewitt, Saratoga Springs
B. R. Holcomb, Whitehall
S. B. Irwin, West Hebron
Edward Joslin, Whitehall
Charles W. Keefer, Mechanicville
B. F. Ketchum, Brattleboro, Vt.
J. Knowlson, Poultney, Vt.
Charles E. Lambert, Salem
J. Lambert, Salem
A. J. Long, Whitehall
W. B. Madison, West Hebron
J. H. Maguire, Salem
Wm. B. Melick, Fort Edward
J. Millington, East Greenwich
I. T. Munroe, Granville
G. B. Murray, Greenwich
W. H. Renois, East St. Louis, Ill.
Henry Root, Whitehall
B. C. Senton, Rutland, Vt.
J. C. Sill, Argyle
George M. Stillman, Argyle
W. A. Tenney, Granville
A. W. Tupper, North Granville
T. C. Wallace, Cambridge
G. H. Whitcomb, Greenwich
Ross Wilson, Sandy Hill
A. M. Young, Salem

Number of Members, 41.

Deceased: J. A. Madison, West Hebron, September 22, 1893, æt. 81.

MEDICAL SOCIETY OF THE COUNTY OF WAYNE.

(Organized July 2, 1823.)

MEETINGS. — Annual, second Tuesday in July· semi-annual, second Tuesday in January.

Officers. (July, 1893.)

Darwin Colvin, *President.* A. F. Sheldon, *Vice-President.*
J. M. Turner, *Secretary.* Darwin Colvin, *Treasurer.*

Censors: J. N. Arnold, M. A. Veeder, W. J. Hennessy, N. E. Landon.

Delegate to State Medical Society: J. N. Arnold.

Members.

J. N. Arnold, Clyde
J. W. Atwood, Marion
G. D. Barrett, Marengo
Frank Barton, Clyde
Mary A. Brownell, Newark
H. N. Burr, Walworth
M. E. Carmer, Lyons
H. L. Chase, Palmyra
Darwin Colvin, Clyde
L. A. Crandall, Palmyra
E. H. Draper, Wolcott
Frank Finley, Macedon
W. J. Hennessy, Palmyra
D. B. Horton, Red Creek
Samuel Ingraham, Palmyra
N. E. Landon, Newark
M. W. T. Negus, South Sodus
W. F. Nutten, Newark
F. M. Pasco, Red Creek
James W. Putnam, Lyons
H. F. Seaman, Alton
A. F. Sheldon, Lyons
J. E. Smith, Clyde
L. H. Smith, Palmyra
J. L. Sprague, Williamson
L. S. Sprague, Williamson
C. H. Towlerton, Lyons
Miss J. M. Turner, Lyons
M. A. Veeder, Lyons
E. E. Williams, Clyde
George D. York, Huron
A. A. Young, Newark

Number of Members, 32.

MEDICAL SOCIETY OF THE COUNTY OF WESTCHESTER.

(Organized May 8, 1797.)

MEETINGS.—Annual, third Tuesday in May, at White Plains; intermediate, third Tuesday in September, November and March.

Officers. (May, 1894.)

Stuart B. Carlisle, *President.* J. L. Porteus, *Vice-President.*
R. Condit Eddy, *Secretary.* Robert T. Howe, *Treasurer.*
Newton F. Curtis, *Curator.*

Censors: A. M. Campbell, W. H. Helm, Newton F. Curtis.

Delegates to State Medical Society.

Newton F. Curtis, H. E. Schmid, A. O. Snowden.

Committee on Hygiene: A. M. Campbell, Wm. F. Greene, Philander Collard.

Members.

Frank A. Augur, Armonk
G. B. Balch, Yonkers
Garret N. Banker, Yonkers
A. T. Banning, Mt. Vernon
Elizabeth H. Bates, Port Chester
W. A. Bell, Yonkers
A. C. Benedict, Yonkers
Charles S. Benedict, 339 W. 19th st., New York
Samuel K. Bemner, Mt. Vernon
James C. Bennett, Yonkers
H. Beatie Brown, Yonkers
Valentine Browne, Yonkers
E. F. Brush, Mt. Vernon
W. E. Bullard, Larchmont
C. P. Byington, Croton Landing
P. A. Callan, Yonkers
A. M. Campbell, Mt. Vernon
Steuart B. Carlisle, Mt. Vernon
W. J. Carpenter, Katonah
Thomas R. Carter, Mt. Vernon
D. L. Casselman, Purdy's Station
Chas. Frs. Chapman, Mt. Kisco
J. Frs. Chapman, Katonah
G. C. S. Choate, Pleasantville
J. H. Churchill, Pawling
E. M. Clarke, Mamaroneck
Philander Collard, Sing Sing
E. E. Colton, Yonkers
J. E. Comfort, Morrisania
David T. Corde, Mt. Vernon
N. S. Coons, Yonkers
A. Cottew, New Rochelle
R. B. Coutant, Tarrytown

A. H. Crump, Jerome
James H. Curry, Shrub Oak
Newton F. Curtis, White Plains
F. W. Dalrymple, New Rochelle
H. G. V. DeHart, White Plains
W. C. Deming, Westchester
Wm. E. Diller, New York
Robert A. Dinegar, Mt. Vernon
Charles E. Drummond, Bedford
Carroll Dunham, Irvington
Robert Condit Eddy, New Rochelle
W. S. Flemming, Mt. Vernon
N. H. Freeland, Tarrytown
J. B. Fulton, Irvington
John H. Furman, Tarrytown
J. T. Gibson, Yonkers
Fred. R. Glover, Mt. Vernon
Thomas F. Goodwin, Mt Vernon
Wm. D. Granger, Bronxville
Wm. F. Greene, Mt. Vernon
Daniel M. Griffin, Pleasantville
J. Albert Hagy, Dobbs Ferry
E. I. Harrington, Yonkers
H. F. Hart, Shrub Oak
Wm. H. Helm. Sing Sing
E. M. Hermance, Yonkers
P. L. Hitchcock, Croton Falls
Stephen F. Horton, Peekskill
Robert T. Howe, Mt Vernon
H. K. Huntington, New Rochelle
Robert T. Irvine, Sing Sing
Louis Jeschinsky, Mt. Vernon
David Johns, Yonkers
Le Baron Jones, Pleasantville
C. H. Judson, Dobbs Ferry
C. E. Kimball, Mt. Vernon
John A. Knapp, Mt. Vernon
C. C. Knight, Peekskill
Jacob J. Lewin, Port Chester
Z E. Lewis, New Rochelle
John J. Linson, Tarrytown
D. C. Loewenstein, New Rochelle
George H. Magness, White Plains
Charles Mason, Peekskill
E. F. Matthews, Port Chester
Thomas McCrossen, City Island
W. J. McDermott, Westchester
S. H. McIlroy, Morrisania
B. W. McNichol, Westchester
C. S. Mead, Port Chester
Oscar H. Merrill, Mt. Vernon
Charles A. Miles, Yonkers
W. A. Miner, Mt. Kisco
A. J. Mixsell, Rye Neck
Henry Moffatt, Yonkers
E. M. Morrell, Yonkers
S. O. Myers, Mt. Vernon
W. H. Neilson, New Rochelle
Edward S. Newell, Mt Vernon
Patrick W. O'Brien, Peekskill
Carl Osterheld, Dobbs Ferry
John Parsons, King's Bridge
H. E. Patch, Chappaqua
J. D. Patterson, Mt. Vernon
J. L. Porteus, Yonkers
P. H. Pyne, Yonkers
C. M. Raymond, New Rochelle
Charles Rich, Cornell
Louis Root, Tarrytown
H. E. Schmid, White Plains
Emil Schofpen, Yonkers
T. F. Sharkey, Mt. Vernon
Frank W. Shipman, Mt. Vernon
E. Shoelderfer, Yorktown
Fred. H. Strong, Yonkers
Edward F. Sheehan, Sing Sing
G. H. Sherman, Yonkers
Elizabeth C. Sleight, Mt. Vernon
H. Eugene Smith, Mt. Vernon
J. W. Smith, Tuckahoe
Alex. O. Snowden, Peekskill
Oscar J. Stafford, Port Chester
James A. Stewart, Tuckahoe
Samuel Swift, Yonkers
E. B. Tefft, New Rochelle
John C. Todd, Tarrytown
Elmer Allen Travis, Mt. Vernon
B. R. Tupper, Mt. Vernon
Nathan P. Tyler, New Rochelle
Nathan A. Warren, Yonkers
G. C. Weiss, Mt. Vernon
W. L. Wells, New Rochelle
Julia St. John Wygant, Peekskill

Number of Members, 126.

Deceased: C. O. Olmsted, Cross River April, 1894.

MEDICAL SOCIETY OF THE COUNTY OF WYOMING.

MEETINGS.—Annual, second Tuesday in June.

(This County Society has not communicated with the State Society since 1884.)

Members.

George M. Blackmore, Pike
F. E. Bliss, Weathersfield Springs
Wm. M. Boddy, North Java
Carlos E. Bowman, Alden, Erie Co.
E. G. Harding, Wyoming
S. S. Kennedy, Varysburg
Zera J. Lusk, Warsaw
W. N. Martin, Cowlesville
R. W. Miller, Castile
Samuel S. Miller, Java

John C. Nichols, North Java
George M. Palmer, Pike
George Palmer, Jr.
Lucius Peck, Arcade
Robert Rae, Portageville
James P. Rathbun, Java
D. W. Rudgers, Perry
S. Chester Smith, Castile
Horatio Spencer, Pike
Number of Members, 19.

MEDICAL SOCIETY OF THE COUNTY OF YATES.

MEETINGS.—Annual, first Tuesday in June; semi-annual, second Tuesday in January. Other meetings as directed by the Society.

Officers. (June, 1894.)

Chas. M. Van Dyke, *President.* M. H. McGovern, *Vice-President.*
Albert Ellison, *Secretary.* John M. Maloney, *Treasurer.*

Censors: N. L. Lusk, J. M. Waddell, Wm. A. Oliver.

Delegate to State Medical Society: Charles Doubleday.

Delegates to Medical Association of Central New York: M. H. McGovern, C. M. Van Dyke.

Members.

Marquis C. Babcock, Branchport
G. W. Brundage, West Dresden
Charles Doubleday, Penn Yan
Albert Ellison, Benton Centre
Cyrus C. Harvey, Dundee
Byron B. Havens, Penn Yan
Benjamin L. Holt, Penn Yan
Schuyler Lott, Bellona
M. H. McGovern, Penn Yan
John M. Maloney, Dundee
O. E. Newman, Potter Centre
Wm. Oliver, Penn Yan
Wm. A. Oliver, Penn Yan
A. R. Otis, Dundee
E. V. Stuart, Italy Hill
C. M. Van Dyke, Himrods
James M. Waddell, Penn Yan
J. H. Wilkin, Rushville
Number of Members, 18.

Deceased: N. L. Lusk, Penn Yan; D. M. Smith, Penn Yan; C. B. Stone, Himrods.

Whole number of members of County Medical Societies, 4,829.

INCORPORATED VOLUNTARY MEDICAL SOCIETIES.

(By-laws, Chapter 1, Section 2.)

MEDICAL ASSOCIATION OF NORTHERN NEW YORK.

(Organized 1872; incorporated 1889.)

Annual meeting, second Tuesday in October, at Malone.

Officers.

L. C. Dodge, *President.*
E. H. Bridges, *Vice-President.*
R. J. Wilding, *Secretary.*
T. Gay, *Treasurer.*

Trustees: B. F. Sherman, S. P. Bates, T. Gay, C. Skinner, J. H. Smith, D. S. Kellogg, T. A. Pease.

Delegate to State Medical Society: J. A. Grant.

Members.

A. H. Allen, Gouverneur
Fred A. Anderson, Massena
C. W. Arthur, Plattsburgh
A. W. Attwater, St. Regis Falls
C. B. Barber, Keeseville
C. C. Bartholomew, Ogdensburg
S. P. Bates, Malone
R. Bestle, Burke
Blake Bigelow, Buck Mountain
F. H. Brewer, Madrid
E. Bridges, Ogdensburg
M. D. Briggs, Champlain
S. E. Brown, Ogdensburg
J. H. Brownlow, Ogdensburg
J. H. Cameron, Malone
H. H. Carpenter, Lawrenceville
M. S. Carpenter, Chateaugay
S. B. Close, Gouverneur
W. E. Clough, West Chazy
G. C. Cole, Potsdam
C. J. Crippen, Trout River
W. S. Daly, Ogdensburg
L. C. Dodge, Rouse's Point
Fred F. Drury, Gouverneur
H. E. Dunton, Swanton
A. W. Fairbanks, Chazy
J. Q. Flood, Hopkinton
D. R. Freeman, Chazy
H. Furness, Malone
T. Gay, Malone
J. A. Grant, Malone
W. R. Hanbridge, Ogdensburg
W. H. Harwood, Chasm Falls
L. E. Hawkins, Brushton
C. B. Hawley, Gouverneur
T. S. Haynes, La Cole, P. Q.
W. H. Hingston, Montreal, P. Q.
O. A. Holcomb, Plattsburgh
E. S. Howe, Saranac
G. Howe, Chateaugay
R. E. Hyde, Beekmantown
I. R. Johnson, Bangor
D. S. Kellogg, Plattsburgh
F. Kinsley, Peru
A. M. Larkin, Norwood
E. A. La Rocque, Malone
J. H. La Rocque, Plattsburgh
E. M. Lyon, Plattsburgh
G. C. Madill, Ogdensburg
J. G. McKinney, Schuyler Falls
F. Madden, Plattsburgh
G. W. Major, Montreal, P. Q.
C. Marshall, Huntington, P. Q.
T. B. Nichols, Plattsburgh
G. H. Oliver, Dickinson
C. E. Pearl, North Bangor
T. A. Pease, Norwood
H. Poland, Westport
A. Proudfoot, Montreal, P. Q.
J. B. Ransom, Dannemora
J. Reynolds, Potsdam
H. C. Rockwood, Bombay
R. S. Saville, Mineville
D. M. Sellec, Brier Hill
B. F. Sherman, Ogdensburg
J. C. Sherman, Ogdensburg
C. Skinner, Malone
J. A. Smart, Fort Covington
J. H. Smith, Plattsburgh
M. Smith, Heuvelton
W. U. Taylor, Mooers
J. S. Van Vechten, Chateaugay

I. M. Wardner, St. Regis Falls
F. D. Whitehead, Chateaugay
A. G. Wilding, Malone
R. J. Wilding, Malone
P. M. Wise, Ogdensburg
L. Wood, Black Brook
D. B. Woodward, Ellenburgh
Number of Members, 79.

Deceased: Z. B. Bridges, Ogdensburg, W. Gillis, Fort Covington, F. W. Sheriff, Huntington, P. Q.

ROCHESTER PATHOLOGICAL SOCIETY.

(Delegate admitted 1890.)

Officers.

H. S. Durand, *President.* W. B. Jones, *Vice-President.*
Wheelock Rider, *Secretary and Treasurer.*

Delegate to State Medical Society: Frank F. Dow.

Honorary Members.

Azel Backus
Wm. H. Briggs
T. A. Brown
D. R. Burrell
*J. D. Dunning
W. S. Ely
B. L. Hovey
David Little
E. M. Moore
C. E. Rider
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APPENDIX.

LAWS OF NEW YORK OF INTEREST TO THE MEDICAL PROFESSION ENACTED BY THE LEGISLATURE OF 1894.

PROVIDING FOR THE INCORPORATION OF COUNTY MEDICAL SOCIETIES.

Chapter 430.

AN ACT

To provide for the incorporation of medical societies in the several counties set apart in the State since the passage of the act, entitled "An act to incorporate medical societies for the purpose of regulating the practice of physic and surgery in this State," passed April 10, 1813.

SECTION 1. Any medical society now organized in any of the counties of the State set apart since the passage of the act, entitled "An act to incorporate medical societies for the purpose of regulating the practice of physic and surgery in this State," passed April 10, 1813, shall, upon complying with the provisions of this act, enjoy the same privileges and possess the same powers as the societies incorporated by virtue of the said act, now enjoy and possess, but subject, nevertheless, to the provisions of any acts or parts of acts heretofore passed in relation to medical societies or to regulate the practice of physic and surgery in this State.

§ 2. Before any such medical society shall be entitled to the privileges and possess the powers as provided in section 1 of this act, such society, at a regular meeting thereof or at a special meeting called for that purpose after due notice to all its members, shall make and file with the secretary of State a certificate, signed and acknowledged by its president and secretary, stating the name of such society, the date of its organization, the name and residence of its members, that the said society, by a majority vote of its members, has elected to become and be a body corporate under and by virtue of said act, and be subject to the provisions of any acts or parts of acts heretofore passed, and now in force, in relation to such societies or the practice of physic and surgery in this State.

§ 3. Upon filing the certificate as provided in section 2 of this act, such society shall become and be a body corporate under the name set forth in said certificate, the same as if such society had been incorporated under and pursuant to the provisions of said act.

§ 4. This act shall take effect immediately.

PROVIDING FOR THE REGISTRATION OF PHYSICIANS.

Chapter 404.

AN ACT

To enable physicians and surgeons, long residents and citizens of this State, who have omitted to register their diplomas, to do so.

SECTION 1. Any person holding a diploma of date prior to January 1, 1880, conferring the degree of bachelor or doctor of medicine from a reputable incorporated American medical school or college, and who has been a resident and citizen of this State continuously since June 1, 1880, and omitted or neglected to register with a county clerk as prescribed by law, shall, upon production of his or her diploma and satisfactory proof of such facts, as provided in section 2 hereof, be entitled, upon payment of a fee of $25, to receive from a State board of medical examiners recommendations upon which the regents shall issue, under seal, a certificate of the facts that he or she may register in the clerk's office of the county where he or she may reside, which shall, after such registration, be a sufficient license to practice medicine in the county where registered.

§ 2. Proof of such residence shall be by affidavits of at least two reputable citizens, whose reliability shall be certified to by any county or supreme court judge of the State.

§ 3. Any person desirous of securing the benefits of this act must do so within one year from the date it takes effect.

§ 4. Nothing in chapter 661 of the Laws of 1893 shall be construed to conflict with this act.

§ 5. This act shall take effect immediately.

PHYSICIANS MADE RESPONSIBLE FOR REPORT OF BIRTHS.

Chapter 679.

AN ACT

To amend section 22, article 2, chapter 661 of the Laws of 1893, entitled "An act in relation to the public health, constituting chapter 25 of the General Laws."

SECTION 1. Section 22 of article 2 of chapter 25 of the General Laws is hereby amended so as to read as follows:

§ 22. *Vital statistics.*— Every such local board shall supervise and make complete the registration of all births, marriages and deaths occurring within the municipality, and the cause of death and the findings of coroners' juries, in accordance with the methods and forms prescribed by the State board of health, and, after registration, promptly forward the certificate of such births, marriages and deaths to the State bureau of vital statistics. Every parent or custodian of a child born, *and the physician or midwife who attended at the birth of such child,** and every groom, officiating clergyman or magistrate at every marriage shall cause a certificate of such birth or marriage to be returned within thirty days thereafter to the local board of health or person designated by it to receive the same,

* The words in italics are added by this amendment.

which shall be attested, if a birth, by the physician or midwife, if any in attendance, and, if a marriage, by the officiating clergyman or magistrate. The cost of such registration, not exceeding twenty-five cents for the complete registered record of a birth, marriage or death, shall be a charge upon the municipality. The charge for a copy thereof shall be fixed by the board, not exceeding the same sum for a complete copy of a single registered record and the additional sum of twenty-five cents if certified to. Such copies shall be furnished upon request of any person, and when certified to be correct by the president or secretary of the board or local registering officer designated by it, shall be presumptive evidence in all courts and places of the facts therein stated.

§ 2. This act shall take effect immediately.

Chapter 617.

AN ACT

To further inquire into the existence of tuberculosis in cattle.

SECTION 1. There shall be appointed by the governor a commission to consist of one physician and one veterinary surgeon, each of whom shall have been engaged in the practice of their professions not less than ten years, and three members of the New York State Dairymen's Association, each engaged in the breeding of a separate and distinct breed of dairy cattle. The commission thus created shall organize by the election of one of its members as president thereof, and one as secretary thereof. The secretary shall receive a salary of $250 per month and his necessary expenses, and he shall keep a complete record of all the proceedings of the commission and perform such other work as may be directed by it. No member of the commission shall receive a salary other than the secretary, but they shall be allowed their necessary expenses.

§ 2. The commission shall have all the power now granted to the State board of health by article 4 of chapter 661 of the Laws of 1893, with reference to tuberculosis in cattle, and it shall also examine into said disease, its existence and any other facts concerning it that may now or hereafter be brought forth, and report the same to the legislature during the month of January, eighteen hundred and ninety-five, setting forth all work done, and all experiments made, and such suggestions for the proper continuation of the work as will tend to remove the said diseases from the cattle of this State.

§ 3. After said report has been submitted to the legislature, the commission shall cease to exist and all its records and papers, with a copy of its report, shall be filed in the office of the State board of health and become a part of the records of said board and be published in the annual report of said board for the year eighteen hundred and ninety-four.

§ 4. For the purposes of this act the sum of $9,000, or so much thereof as may be necessary, is hereby appropriated out of moneys in the treasury not otherwise appropriated, to be paid to such commissioners by the treasurer, upon the warrant of the comptroller, issued upon vouchers audited by the comptroller.

§ 5. This act shall take effect immediately.

Chapter 666.

AN ACT

In relation to the destruction by fire or heat of all animal and vegetable refuse and garbage in towns and villages having over ten thousand inhabitants.

SECTION 1. Within any village having over ten thousand inhabitants it shall be lawful for the trustees of such village, and within any town having over ten thousand inhabitants, or within any district in any such town established by the town board of such town, it shall be lawful for the town board of such town to provide for the collection of and to cause to be consumed by fire or heat, and to prohibit the throwing, casting or deposit in any body or stream of water, or upon any ash heap or other place than such as may be provided by them within such village, town or district, any animal or vegetable refuse, dead animal, carrion, offal, swill or garbage. And it shall be lawful for the town board of any such town, or the trustees of any such village, to contract for the collection and for the consumption by heat or fire of any such refuse or other aforesaid matter, or for the purchase, maintenance and operation of any appliances for the collection and consumption thereof.

§ 2. Any person offending against any such provision as aforesaid made by any such town board or trustees for the collection, or for the prohibition of the throwing, casting or deposit of any such refuse or other aforesaid matter shall be deemed guilty of a misdemeanor.

§ 3. Any expense incurred in any town, or any district in any town, pursuant to the provisions of this act shall be levied, assessed and collected upon the taxable property in the town or district as to which the same is incurred in the same manner, at the same time and by the same officers as the town taxes, charges or expenses of such town are assessed, levied and collected, and shall be paid over to the supervisor of such town, and by him applied to the payment of such expense. Any expense incurred in any village, pursuant to the provisions of this act, shall be annually raised as a part of the expenses of such village, and shall be levied, assessed and collected in the same manner that other expenses of such village are raised and shall be kept separate from the other funds of such village and shall be applied by the trustees thereof to the payment of such expense.

§ 4. This act shall take effect immediately.

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